

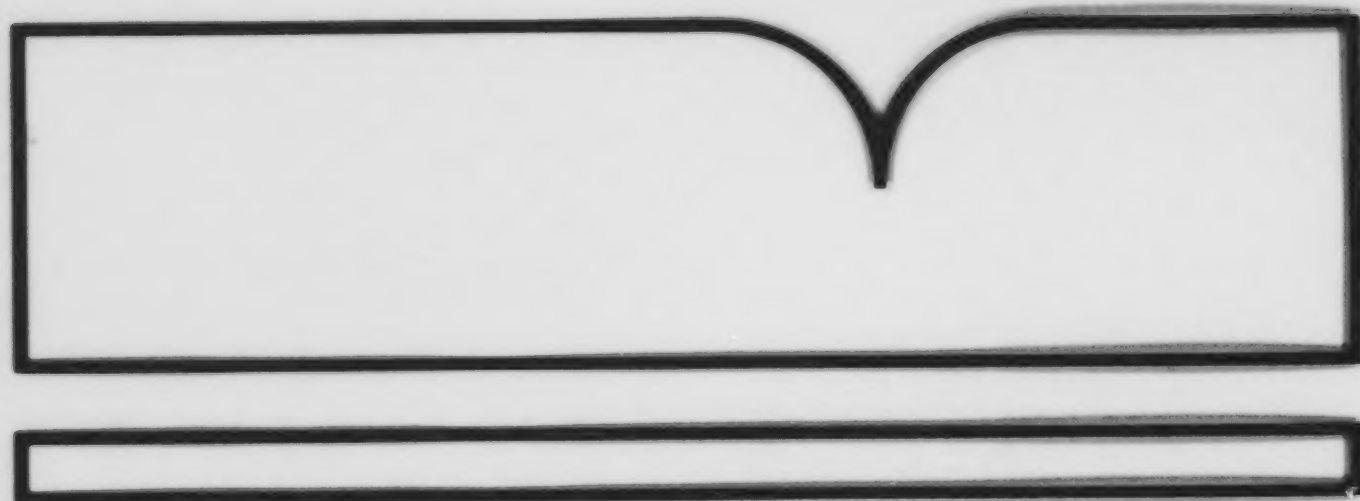
Advanced Utility Simulation Model
Data Base Maintenance (Version 1.0)

Illinois Univ., Urbana

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ADVANCED UTILITY SIMULATION MODEL:
DATA BASE MAINTENANCE
(VERSION 1.0)

by

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This study was conducted in cooperation with the
National Acid Precipitation Assessment Program

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16. ABSTRACT The report is one of 11 in a series describing the initial development of the Advanced Utility Simulation Model (AUSM) by the Universities Research Group on Energy (URGE) and its continued development by the Science Applications International Corporation (SAIC) research team. The AUSM is one of four stationary source emission and control cost forecasting models developed by EPA for the National Acid Precipitation Assessment Program (NAPAP). The AUSM projects air pollution emissions (SO ₂ and NO _x), generating technology types and costs of operation, and combinations of fuels and emission control technologies to simultaneously meet electric demand and emission constraints on a least cost basis for each year through 2010. Thirteen electric demand regions are simulated, and output is provided for each of the 48 states. The initial version of AUSM, designated Version 1.0, was delivered by URGE in November 1984 and August 1985. Further development of the AUSM by SAIC between 1985 and 1988 has resulted in the development of Versions 2.0 and 3.0. Reports describing these revisions by SAIC to the initial Version 1.0 of AUSM are also part of this series.			
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ABSTRACT

The Advanced Utility Simulation Model (AUSM) is one of four stationary source emission and control cost forecasting models developed by the Air and Energy Engineering Research Laboratory for the National Acid Precipitation Assessment Program. The AUSM model projects air pollution emissions (sulfur dioxide and nitrogen oxides), generating technology types and costs of operation, and combinations of fuels and emission control technologies to simultaneously meet electric demand and emission constraints on a least cost basis for each year through 2010. Thirteen separate electric demand regions are simulated and output is provided for each of the 48 states.

This document is one of several in this series that describes the initial development of the AUSM model by the Universities Research Group on Energy (URGE) and its continued development by the Science Applications International Corporation (SAIC) research team. The initial version of AUSM, designated by EPA as Version 1.0, was delivered by URGE in November 1984 and August 1985. Further development of the AUSM model by the Science Applications International Corporation (SAIC) in the 1985-1988 period has resulted in the development of Versions 2.0 and 3.0. Reports describing these revisions by SAIC to the initial version 1.0 of AUSM are also part of this series.

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The URGE researchers were led by James J. Stukel, Director, Public Policy Program, College of Engineering, University of Illinois at Urbana-Champaign. This report was authored by URGE project researchers at Carnegie-Mellon University, the University of Illinois at Urbana-Champaign, and Cornell University. The report's authors are listed as follows:

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1. The Demand Module

by

Martha Czerwinski, Steven Kyereme, Timothy D. Mount,
Valorie Rockney, and Amy Schwartz

1.1. Introduction

The demand module of the URGE/AUSM provides forecasts of the quantities of electricity and of primary fuels used in the residential, commercial, and industrial sectors (and the quantity of electricity used in the transportation sector). These forecasts are derived from econometric equations that relate the quantities of electricity and of fuels used to their relative prices and to economic conditions (see Chapter 2 of the analytical documentation of the URGE/AUSM). In the following section, the derivation of data used for estimating the demand equations is described in detail. Finally, in the third section, a summary is given of the data needed to make projections using the demand module. The third section is the most relevant for users of the URGE/AUSM, and it complements the material presented in Chapter 4 of the programmer documentation for the URGE/AUSM.

1.2 Primary Data Sources

1.2.1 Principles of Selection

The following two principles were used to determine the selection of sources of data:

- (1) Sources should be reliable so that data series can be updated.
- (2) Sources should be compatible with the structure of and linkages to other modules in the URGE/AUSM.

Although the U.S. Department of Energy (DOE) does provide annual data on the consumption and prices of electricity and of primary fuels at the state level, this source was not used exclusively. During the past three years, there has been much uncertainty about the continuity of funding at DOE for data publications. Consequently, most of the historical data series for electricity and natural gas were taken from

industry publications. The Edison Electric Institute is the primary source for electricity data, and American Gas Association is the primary source for natural gas data. Since the American Petroleum Institute does not provide data for oil use by sector at the state level, DOE sources were used. There were, however, problems with the consistency of the consumption series for oil over time that affected the estimation of the demand equations (see Section 2.2.2 of the analytical documentation). The primary source for economic and demographic data was the Bureau of Economic Analysis in the U.S. Department of Commerce.

In order to allow interstate, intersectoral, and interfuel comparisons to be made easily, quantity and price data were converted to common units (million Btu/capita/year and real 1980 \$/million Btu, respectively) before estimating the demand equations. This also made it easier to identify anomalies and errors in the series. The derived data variables discussed in the following section are presented in these common units. The estimated equations used in the demand module are also based on these units. Appropriate changes of units are made in the code, however, to ensure that variables passed to other modules follow the conventions established for the URGE/AUSM.

A substantial amount of effort was made to ensure that the data used for estimation were accurate. Data series were entered from published sources by one person, and then checked against the original sources by two other people. In addition, time-series plots were made to help identify discontinuities and unusual observations. When problems with the data were identified, people within the organization which published the data were contacted by telephone. Although it was not always possible to solve each problem, we received excellent cooperation from these contacts.

1.2.2. Data Used to Estimate the Demand Equations

The major objectives in this section are (1) to identify the sources of all data collected for estimating the demand equations, (2) to summarize the final form of the variables used for estimation, and (3) to present the relationships used to transform the raw data into the derived variables. In most cases, the transformations are simply to redefine the units, and these relationships are summarized in Table 1-3. For certain variables, however, the transformations are more complex, and these are summarized in the text.

The data are grouped by sector since demand equations were estimated separately for the residential, commercial and industrial sectors. Although the transportation section is a large user of energy, electricity forms a very small part of this amount. Electricity used by railroads is the only source of transportation energy forecasted in the URGE/AUSM. One reason for this decision is the lack of suitable price series for different oil fuels in the transportation sector. Nevertheless, quantity series for oil fuels were collected for the transportation sector, and are included in Tables 1-1 and 1-2.

1.2.3 Derived Data

The derived variables used for estimation are grouped into four archives corresponding to the residential, commercial, industrial, and transportation sectors (the exact form of the demand equations is described in Section 2.2.2 of the analytical documentation). Table 1-1 provides a summary of the derived variables. This table gives a listing of the variables by fuel type for the four archives, followed by the conventions used to establish the code name for each variable. In Table 1-2, a complete glossary of the derived variables is given alphabetically by archive. This glossary includes the code name, full name, units of measurement, and the formula used for deriving the variable from the raw data. These formulae are also summarized by sector in Table 1-3.

The most important derived variables that require some additional explanation are the marginal prices of electricity. Average prices for each sector can be computed directly from the ratio of revenue received from a sector to the level of consumption of electricity in that sector. It is argued in Section 2.1 of the analytical documentation that it is more appropriate to represent the structure of a rate schedule in terms of a customer charge and the marginal price for electricity than by average price, because it is the marginal price that affects the cost of changing the amount of electricity used. It is, however, much more difficult to determine marginal prices than average prices.

Price data at the state level represent an aggregation of different rate schedules for different companies. The most widely used source of information about marginal prices at this level of aggregation is *Typical Electrical Bills*. In this publication, the costs of purchasing different specified amounts of electricity are given for the residential, commercial, and industrial sectors. These costs may be treated as points

on the representative rate schedules for each sector. Given the small number of points reported for each rate schedule, it is possible to approximate each schedule by a simple polynomial relationship between the cost and the quantity purchased. A linear relationship was used for each sector, year, and state in the sample period. With a linear relationship, the slope and intercept represent the marginal price and the customer charge, respectively.

The data published in *Typical Electric Bills* are based on a specific sampling strategy, and are not necessarily compatible with the corresponding revenue and consumption data for each state. Consequently, it is not appropriate to use the estimated slopes, directly, for example, as measures of the marginal prices. This would lead to a systematic bias in some cases, particularly in the industrial sector. Consequently, the data from *Typical Electric Bills* were used to determine the ratio of marginal to average price. This ratio was then applied to the observed average price to derive the measure of marginal price used in the analysis. The corresponding customer charge is computed from the identity for revenue (*customer charge = revenue - marginal price x quantity consumed*).

The ratio of marginal price to average price was determined from the fitted linear rate relationships by determining the predicted average price for the observed quantity consumed per customer.¹ The ratio can then be calculated directly by dividing the estimated slope by this predicted average price. In almost every case the ratio is less than one, implying that rates decline as the quantity used per customer increases, and that the customer charge is positive.

One other derived variable requires further explanation. This is the proportion of the total amount of gasoline consumed that is used in the residential sector. Since gasoline represents a large part of the cost of energy to households, it was considered appropriate to include gasoline consumption as part of the transportation sector. This latter convention is followed in the standard source of state level data from the U.S. Department of Energy (DOE). For most years in the sample (1967 to 1976), it is possible to calculate the proportion of gasoline going to the residential sector directly from another DOE study (*End Use Energy Consumption: Transportation Sector*). For years not included in the study, the proportions were

¹The data for number of customers by sector exhibit discontinuities that are not exhibited by the quantity series. To avoid introducing spurious changes in the quantity used per customer, the customer series were smoothed using a standard exponential weighting scheme.

predicted from simple econometric models fitted for the sample data. These models relate the observed proportion to the ratio of the price of gasoline to income, the lagged proportion and shift factors relating to the oil embargo of 1973/74. Separate models were fitted for each census region with different intercepts for each state. Predictions of the proportions after 1976 show only slight changes from the 1976 values for each state compared to the changes observed during the oil embargo.

1.2.3 Raw Data

The raw data used to calculate the derived data are summarized in Table 1-4. This table provides a list of the variables used for each sector, corresponding to the input variables for the formula presented in Table 1-3. The variables are grouped by fuel in a similar manner to the procedure followed in Table 1-1 for the derived variables. Table 1-4 also provides an explanation of the conventions used for the code names of individual variables.

The raw data are grouped into separate archives for different sectors. In addition to the four sectors used for the derived data (residential, commercial, industrial and transportation), archives for the utility sector and an aggregate for all sectors are included. The main reason for these two additional archives is that some derived variables were calculated by subtracting sectoral values from the state aggregate. For this reason, the five sectors are specified to sum to the state aggregate.

In Table 1-5, a complete glossary of the raw data variables is given with information about the published source of the data, the units of measurement and additional comments. The comments contain information about anomalies in the data or changes in the source. One recurring comment refers to the aggregation of data for Maryland and the District of Columbia. In many sources, these data are published separately. They have been aggregated in the raw data files to be consistent with the regional definitions of the URGE/AUSM. The comment "MC derived" indicates that the data are presented separately in the published source.

There are only two types of variables which include observations that were not taken from published sources. The first is personal disposable income, because no values have been published for years prior to 1967. The missing observations were obtained from the same source (the Bureau of Economic Analysis),

but were taken from unpublished documents. The second type of variable is the generation by fuel type. These data were not published by the Edison Electric Institute in 1971 or 1972. These data were derived directly from federal sources (Federal Energy Administration).

Two major revisions to the data set were made during the development of the URGE/AUSM. The first was to recalculate all of the derived data based on per capita units. This was done when the revised population values were published for 1970 to 1980 using information derived from the 1980 Census. The second revision involved changes in the consumption series for oil products published by the U.S. Department of Energy. In this latter case, however, the revised series still exhibited discontinuities attributable, in part, to changing the methods of data collection. Hence, although these data agree with the published source, they were considered unreliable for estimating the demand equations (see Section 2.2.2 of the Analytical Documentation).

1.3. Criteria for Updating Data

For the state-level version of the URGE/AUSM, the inputs needed for the demand module are supplied by users, although default values are also available. This situation will be substantially different for the national model, because users will then be able to supply inputs at the national level (or for a region), and these values will automatically be transformed into the appropriate state level inputs. Although it will still be possible to specify inputs for individual states with the national model, it is assumed that it will not be practical to specify 48 sets of inputs for each national run.

Regardless of whether the model is run for the nation, a region or an individual state, the demand module requires two types of inputs for each of the three major sectors (residential, commercial, and industrial). These are (1) measures of economic activity, and (2) the prices of primary fuels. These variables are inputs into the demand equations, and values are required for every year in the forecast period. If all of these values were supplied directly by users, the input requirements would be extremely bulky. Consequently, three major simplifications have been introduced.

The first simplification is to provide a Lagrangian interpolation procedure so that values for an input need only be specified for a relatively small number of years in the forecast period. There is no need to

choose the same years for all data with this procedure, so that different types of inputs can be specified with different base years. In this way, inputs can be supplied so that they are consistent with projections published by different agencies or organizations. In the current version of the model, it is necessary to provide a projected value for 2010. The reason for this is that some sources only publish forecasts for the near future (e.g., up to 1990). Hence, users are required to specify a value for the end of the forecast period because simple extrapolation procedures might lead to irrational input values. Similarly, values for a year at the beginning of the forecast period (not necessarily 1980) should also be specified to provide values that span the whole forecast period. Up to five values for five specified years can be supplied by users, and the interpolation procedure ensures that the projected path for an input passes through the specified values exactly.

The second simplification is that the number of input variables supplied by users is reduced compared to the number of variables needed as inputs into the equations of the demand module. This is done by providing additional structure so that certain variables are linked together within the module. Because of this simplification, it is only necessary to provide four economic variables, six fuel prices and one load characteristic. Further simplifications will be made in the national model by providing additional structure to link variables in different states together. This will enhance the existing structure that links variables within a state together. The assumptions underlying the structure linking variables within a state are discussed in the sub-sections that follow.

The third simplification is that the input variables are calibrated to correspond to the initial values for 1980 that are part of the basic data used in the Demand module. In other words, it is not necessary to use exactly the same definitions of the input variables as those used within the module. For the economic variables, proportional relationships between the specified input and the initial value in the model are maintained. If the specified input doubles from 1980 to 1990, then the appropriate initial value in the demand module will also double by 1990. In other words, the units of the specified inputs need not correspond to the units used internally within the module. For fuel prices, absolute differences in real 1980 prices supplied by users must be 1980 cents/million Btu. If the specified input price increases by x cents from 1980 to 1990, then the appropriate input price will also increase by x cents in 1990. The reason for using this procedure for fuel prices is that the main source of projections is from the Department

of Energy, and projections are generally published for regions rather than for individual states. The procedure used for prices maintains the real price differences among states in a region. The differences are relatively large in some cases. If proportionality relationships had been maintained, rather than absolute differences, projecting increasing prices for a region could lead to unrealistically large price differences for a fuel among states. The procedure chosen is consistent with the consumption that real price increases reflect increases in the real cost of the raw product rather than increases in distribution costs in real terms.

1.4 Generating the Final Data File

In the three following subsections, the specific input requirements for the demand module are summarized. These inputs are identified with the appropriate sections of the Design Documentation and Programmer Documentation of the URGE/AUSM. The fourth subsection deals with situations under which levels of demand are specified exogenously by a user.

1.4.1 Economic Variables

The four economic variables specified by users are:

- Total real personal income (million \$)
- Population (thousands)
- Manufacturing employment (thousands)
- Total employment (thousands)

These variables correspond to those identified in Section 1 of E1 in the External Data Set (Analytical Documentation, p. 24) which are required for Data Group 13 (op. cit., p. 52). It should be noted that the units of measurement need not be identical to those given below, because the inputs will automatically be scaled to correspond to the initial values required in the demand module.

For a given set of prices, population and real personal income determine the level of demand for electricity in the residential sector. Manufacturing employment determines demand in the industrial sector, and the difference between total employment and manufacturing employment determines demand in the commercial (and transportation) sector.

Wages are determined within the module to reduce the number of inputs supplied by users. This is done by specifying that the ratio of the total wage bill to total personal income remains constant at the 1980 level. In addition, the ratio of wages in the industrial and commercial sectors is also held constant at the 1980 level. In other words, wages change by the same proportion in different sectors from one year to the next, and the total wage bill grows at the same rate as total personal income.

Projections of the four economic variables can be obtained from the Bureau of Economic Analysis in the U.S. Department of Commerce. These projections are made at the state level. A new set of projections of employment and income are scheduled for publication in 1985. The projections are available in machine readable form, and are also published in the *Survey of Current Business*. In the current version of the model, the projections were taken from the 1980 edition of this publication.

1.4.2 Prices of Alternative Fuels

Caroline Badger has proposed some changes for oil prices, and in addition, DOE has not settled down to a new schedule for producing projections. This section will be completed later.

1.4.3 Load Characteristics

Two important characteristics of the demand for electricity are supplied by users. The first is the load factor, which relates energy requirements to peak load. Since energy requirements are determined in the Demand module, the load factor is used to determine the peak load. The second characteristic is the net transfer of power into the state. At the present time, net transfers of power are held constant at the 1980 level, but plans exist to treat transfers as another input variable in the model.

Projections of the load factor are published annually by the National Electric Reliability Councils. These projections are made for regions rather than states. Thirteen groups of states have been identified to correspond to NERC regions, and to reduce the relative importance of interregional transfers of power. These regions are shown in Figure 1-1. The national version of the URGE/AUSM will operate at a regional level, so that transfers of power among states within a region can be determined within the model. These interstate transfers will then be used as inputs into the state model. At the present time,

Figure 1-1
Thirteen Proposed Regions for Planning and Dispatching



the projected factor is assumed to be the same for all states within a region.

1.4.4 Specifying Demand Exogenously

For any set of inputs, it is possible to override the level of demand predicted by the demand module, and to use a level specified by the user. The procedures for doing this are described in detail in Section 4.2.5 of the Programmer Documentation. In addition, it is possible to specify demand exogenously for electricity, oil, natural gas, and coal as well as for electricity alone. In all cases, the quantities specified should correspond to the total quantities purchased in the residential, commercial, and industrial sectors (including the transportation sector for electricity only). For electricity, this implies that the specified value should be "sales to ultimate customers" rather than generation.

When the quantity demanded is specified exogenously, it is treated as an input variable. Hence, levels of demand for a few selected years can be specified, and the appropriate values for other years will be computed by interpolation. It is also possible to supply growth rates for specified periods rather than levels for specified years. In fact, these two procedures can be combined by specifying first a set of levels followed by a set of growth rates (op. cit., Section 4.2.5). In this way, it is possible to enter observed levels of demand for recent years and then to splice on a projected growth path.

Projections of the energy requirements and net transfers of energy are published annually by the National Electric Reliability Councils. These projections are for the regions shown in Figure 1-1. State level projections can be obtained from the U.S. Department of Energy. At the present time, no final decision has been made about the choice of source for a default set of projections.

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Table 1-1
THE DERIVED DATA USED FOR ESTIMATION BY SECTOR

RESIDENTIAL SECTOR: RINTER

QEL	SALES OF ELECTRICITY TO THE RESIDENTIAL SECTOR
PELM	MARGINAL PRICE OF ELECTRICITY IN THE RESIDENTIAL SECTOR
LSUM	CUSTOMER CHARGE FOR ELECTRICITY IN THE RESIDENTIAL SECTOR
PELA	AVERAGE PRICE OF ELECTRICITY IN THE RESIDENTIAL SECTOR
CEL	CUSTOMERS OF ELECTRICITY IN THE RESIDENTIAL SECTOR
QNG	SALES OF NATURAL GAS TO THE RESIDENTIAL SECTOR
PNG	PRICE OF NATURAL GAS IN THE RESIDENTIAL SECTOR
CNG	CUSTOMERS OF NATURAL GAS IN THE RESIDENTIAL SECTOR
QOL	CONSUMPTION OF LIGHT OIL BY THE RESIDENTIAL SECTOR
POL	PRICE OF LIGHT OIL IN THE RESIDENTIAL SECTOR
QOM	CONSUMPTION OF MOTOR GASOLINE BY THE RESIDENTIAL SECTOR
POM	PRICE OF MOTOR GASOLINE IN THE RESIDENTIAL SECTOR
PCDI	PER CAPITA DISPOSABLE INCOME
PNF	PRICE OF NON-FUEL ITEMS IN THE RESIDENTIAL SECTOR
PAPPL	PRICE OF APPLIANCES
PNCAR	PRICE OF NEW CARS
GASRAT	RATIO OF CONSUMPTION OF MOTOR GASOLINE BY THE RESIDENTIAL SECTOR TO TOTAL CONSUMPTION OF MOTOR GASOLINE

COMMERCIAL SECTOR: CINTER

QEL	SALES OF ELECTRICITY TO THE COMMERCIAL SECTOR
PELM	MARGINAL PRICE OF ELECTRICITY IN THE COMMERCIAL SECTOR
LSUM	CUSTOMER CHARGE FOR ELECTRICITY IN THE COMMERCIAL SECTOR
PELA	AVERAGE PRICE OF ELECTRICITY IN THE COMMERCIAL SECTOR
CEL	CUSTOMERS OF ELECTRICITY IN THE COMMERCIAL SECTOR
QNG	SALES OF NATURAL GAS TO THE COMMERCIAL SECTOR
PNG	PRICE OF NATURAL GAS IN THE COMMERCIAL SECTOR
CNG	CUSTOMERS OF NATURAL GAS IN THE COMMERCIAL SECTOR
QOL	CONSUMPTION OF LIGHT OIL BY THE COMMERCIAL SECTOR
POL	PRICE OF LIGHT OIL IN THE COMMERCIAL SECTOR
QOH	CONSUMPTION OF HEAVY OIL BY THE COMMERCIAL SECTOR
POH	PRICE OF HEAVY OIL IN THE COMMERCIAL SECTOR
QLB	NUMBERS OF EMPLOYEE-WEEKS IN THE COMMERCIAL SECTOR
PLB	WAGES IN THE COMMERCIAL SECTOR

INDUSTRIAL SECTOR: IINTER

QEL	SALES OF ELECTRICITY TO THE INDUSTRIAL SECTOR
PELM	MARGINAL PRICE OF ELECTRICITY IN THE INDUSTRIAL SECTOR
LSUM	CUSTOMER CHARGE FOR ELECTRICITY IN THE INDUSTRIAL SECTOR
PELA	AVERAGE PRICE OF ELECTRICITY IN THE INDUSTRIAL SECTOR
CEL	CUSTOMERS OF ELECTRICITY IN THE INDUSTRIAL SECTOR
QNG	SALES OF NATURAL GAS TO THE INDUSTRIAL SECTOR
PNG	PRICE OF NATURAL GAS IN THE INDUSTRIAL SECTOR
CNG	CUSTOMERS OF NATURAL GAS IN THE INDUSTRIAL SECTOR
QCL	CONSUMPTION OF COAL BY THE INDUSTRIAL SECTOR

Table 1-1 (contd.)

PCL	PRICE OF COAL IN THE INDUSTRIAL SECTOR
QOL	CONSUMPTION OF LIGHT OIL BY THE INDUSTRIAL SECTOR
POL	PRICE OF LIGHT OIL IN THE INDUSTRIAL SECTOR
QOH	CONSUMPTION OF HEAVY OIL BY THE INDUSTRIAL SECTOR
POH	PRICE OF HEAVY OIL IN THE INDUSTRIAL SECTOR
QLB	NUMBERS OF EMPLOYEE-WEEKS IN THE INDUSTRIAL SECTOR
PLB	WAGES IN THE INDUSTRIAL SECTOR

TRANSPORTATION SECTOR: TINTER

QEL	SALES OF ELECTRICITY TO THE TRANSPORTATION SECTOR
PEL	PRICE OF ELECTRICITY IN THE TRANSPORTATION SECTOR
QOL	CONSUMPTION OF LIGHT OIL BY THE TRANSPORTATION SECTOR
QOH	CONSUMPTION OF HEAVY OIL BY THE TRANSPORTATION SECTOR
QOM	CONSUMPTION OF MOTOR GASOLINE BY THE TRANSPORTATION SECTOR
QOA	CONSUMPTION OF AVIATION FUEL BY THE TRANSPORTATION SECTOR
QLB	NUMBERS OF EMPLOYEE-WEEKS IN THE TRANSPORTATION SECTOR
PLB	WAGES IN THE TRANSPORTATION SECTOR

VARIABLE NAME CONVENTIONS FOR DERIVED DATA

SIX-LETTER PREFIXES: SECTORS

RINTER	RESIDENTIAL
CINTER	COMMERCIAL
IINTER	INDUSTRIAL
TINTER	TRANSPORTATION

FUEL DATATYPES

CHARACTER 1: DATATYPES (CATEGORIES)

Q	QUANTITIES, SALES, CONSUMPTION; FOR LABOR, NUMBERS OF EMPLOYEE-WEEKS
P	PRICES; FOR LABOR, WAGES
C	CUSTOMERS

CHARACTERS 2-3: FUEL TYPES

EL	ELECTRICITY
NG	NATURAL GAS
CL	COAL
OL	OIL, LIGHT
OH	OIL, HEAVY
OM	OIL, MOTOR GASOLINE
OA	OIL, AVIATION
LB	LABOR

CHARACTER 4: FURTHER QUALIFIERS

M	MARGINAL
A	AVERAGE

Table 1-1 (contd.)

OTHER DATATYPES

CHARACTER 1-3, 1-4, 1-5 AND 1-6: OTHER DATATYPES (CATEGORIES)

PNF	PRICE OF NON-FUEL ITEMS
PCDI	PER CAPITA DISPOSABLE INCOME
PAPPL	PRICE OF APPLIANCES
PNCAR	PRICE OF NEW CARS
GASRAT	GASOLINE RATIO
LSUM	CUSTOMER CHARGE

Table 1-2
GLOSSARY OF THE DERIVED DATA

CINTER_CEL -
CUSTOMERS OF ELECTRICITY IN THE COMMERCIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS PER CAPITA
 $CINTER\_CEL = COM\_CEL / 1000 / STA\_POP$

CINTER_CNG -
CUSTOMERS OF NATURAL GAS IN THE COMMERCIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS PER CAPITA
 $CINTER\_CNG = COM\_CNG / STA\_POP$

CINTER_LSUM -
ANNUAL CUSTOMER CHARGE FOR TYPICAL CUSTOMER OF ELECTRICITY
IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER CAPITA
 $CINTER\_LSUM = COM\_QEL * (COM\_REL / COM\_QEL / 3.412 / STA\_CPI - PELM) /$
 $STA\_POP * 3.412$

CINTER_PELA -
AVERAGE PRICE OF ELECTRICITY IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $CINTER\_PELA = (COM\_RELSCI + COM\_RELSHL + COM\_RELOPA) / ((COM\_QELSCI + COM\_QELSHL$
 $+ COM\_QELOPA) / 3.412 / STA\_CPI$

CINTER_PELM -
MARGINAL PRICES OF ELECTRICITY IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $CINTER\_PELM = COM\_BELSL * COM\_REL / COM\_QEL / 3.412 / STA\_CPI /$
 $(COM\_BELIN * 12 * COM\_CELS / 1000 / COM\_QEL + COM\_BELSL)$

CINTER_PLB -
WAGES IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER EMPLOYEE PER WEEK (1980 DOLLARS)
 $CINTER\_PLB = (STA\_RLBT - (IND\_RLB + (TRN\_RLBT - TRN\_RLBC - TRN\_RLBPU))) /$
 $((STA\_QLBT - (IND\_QLB + (TRN\_QLBT - TRN\_QLBC - TRN\_QLBPU))) /$
 $1000) / 52 / STA\_CPI$

CINTER_PNG -
PRICE OF NATURAL GAS IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $CINTER\_PNG = COM\_RNG / COM\_QNG / 1000 / STA\_CPI$

CINTER_POH -
PRICE OF HEAVY OIL IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $CINTER\_POH = COM\_POHRR / STA\_CPI$

CINTER_POL -
PRICE OF LIGHT OIL IN THE COMMERCIAL SECTOR
UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $CINTER\_POL = COM\_POLDR / STA\_CPI$

CINTER_QEL -
SALES OF ELECTRICITY TO THE COMMERCIAL SECTOR
UNITS: MILLIONS OF BTU PER CAPITA
 $CINTER\_QEL = (COM\_QELSCI + COM\_QELSHL + COM\_QELOPA) / STA\_POP * 3.412$

CINTER_QLB -
NUMBERS OF EMPLOYEE-WEEKS IN THE COMMERCIAL SECTOR
UNITS: NUMBERS OF EMPLOYEE-WEEKS PER CAPITA
 $CINTER\_QLB = (STA\_QLBT - (IND\_QLB + (TRN\_QLBT - TRN\_QLBC - TRN\_QLBPU))) / 1000 * 52$
 $/ STA\_POP$

Table 1-2 (contd.)

CINTER_QNG -
 SALES OF NATURAL GAS TO THE COMMERCIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA

$$\text{CINTER\_QNG} = \text{COM\_QNG} / \text{STA\_POP} * 1000$$

CINTER_QOH -
 CONSUMPTION OF HEAVY OIL BY THE COMMERCIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA

$$\text{CINTER\_QOH} = (\text{COM\_QOT} - (\text{COM\_QOLD} + \text{COM\_QOLM} + \text{COM\_QOLL})) / \text{STA\_POP} * 1000$$

CINTER_QOL -
 CONSUMPTION OF LIGHT OIL BY THE COMMERCIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA

$$\text{CINTER\_QOL} = (\text{COM\_QOLD} + \text{COM\_QOLM} + \text{COM\_QOLL}) / \text{STA\_POP} * 1000$$

IINTER_CEL -
 CUSTOMERS OF ELECTRICITY IN THE INDUSTRIAL SECTOR
 UNITS: NUMBERS OF CUSTOMERS PER CAPITA

$$\text{IINTER\_CEL} = \text{IND\_CEL} / 1000 / \text{STA\_POP}$$

IINTER_CNG -
 CUSTOMERS OF NATURAL GAS IN THE INDUSTRIAL SECTOR
 UNITS: NUMBERS OF CUSTOMERS PER CAPITA

$$\text{IINTER\_CNG} = \text{IND\_CNG} / \text{STA\_POP}$$

IINTER_LSUM -
 ANNUAL CUSTOMER CHARGE FOR TYPICAL CUSTOMER OF ELECTRICITY
 IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER CAPITA

$$\text{IINTER\_LSUM} = \text{IND\_QEL} * (\text{IND\_REL} / \text{IND\_QEL} / 3.412 / \text{STA\_CPI} - \text{PELM}) / \text{STA\_POP} * 3.412$$

IINTER_PCL -
 PRICE OF COAL IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

$$\text{IINTER\_PCL} = \text{UTL\_PCL} / 100 / \text{STA\_CPI}$$

+IINTER_PELA -
 §
 AVERAGE PRICE OF ELECTRICITY IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

$$\text{IINTER\_PELA} = \text{IND\_REL} / \text{IND\_QEL} / 3.412 / \text{STA\_CPI}$$

IINTER_PELM -
 MARGINAL PRICES OF ELECTRICITY IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

$$\text{IINTER\_PELM} = \text{IND\_BELSL} * \text{IND\_REL} / \text{IND\_QEL} / 3.412 / \text{STA\_CPI} / (\text{IND\_BELIN} * 12 * \text{IND\_CELS} / 1000 / \text{IND\_QEL} + \text{IND\_BELSL})$$

IINTER_PLB -
 WAGES IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER EMPLOYEE PER WEEK (1980 DOLLARS)

$$\text{IINTER\_PLB} = \text{IND\_RLB} / (\text{IND\_QLB} / 1000) / 52 / \text{STA\_CPI}$$

IINTER_PNG -
 PRICE OF NATURAL GAS IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

$$\text{IINTER\_PNG} = \text{COMBINE}(\text{SUBMAT}(\text{IND\_RNGT} / \text{IND\_QNGT} / 1000 / \text{STA\_CPI}, \text{COMBINE}(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12), 0), \text{SUBMAT}((\text{IND\_RNGT} - \text{UTL\_RNG}) / (\text{IND\_QNGT} - \text{UTL\_QNG}) / 1000 / \text{STA\_CPI}, \text{COMBINE}(13, 14, 15, 16), 0))$$

IINTER_POH -
 PRICE OF HEAVY OIL IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

Table 1-2 (contd.)

$IINTER\_POH = IND\_POHRR/STA\_CPI$
IINTER_POL -
 PRICE OF LIGHT OIL IN THE INDUSTRIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $IINTER\_POL = IND\_POLDR/STA\_CPI$
IINTER_QCL -
 CONSUMPTION OF COAL BY THE INDUSTRIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $IINTER\_QCL = IND\_QCL/STA\_POP*1000$
IINTER_QEL -
 SALES OF ELECTRICITY TO THE INDUSTRIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $IINTER\_QEL = IND\_QEL/STA\_POP*3.412$
IINTER_QLB -
 NUMBERS OF EMPLOYEE-WEEKS IN THE INDUSTRIAL SECTOR
 UNITS: NUMBERS OF EMPLOYEE-WEEKS PER CAPITA
 $IINTER\_QLB = IND\_QLB/1000*52/STA\_POP$
IINTER_QNG -
 SALES OF NATURAL GAS TO THE INDUSTRIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $IINTER\_QNG = COMBINE(SUBMAT(IND\_QNGT/STA\_POP*1000, COMBINE(1,2,3,4,5,6,7,8,9,10,11,12),0), SUBMAT((IND\_QNGT-UTL\_QNG)/STA\_POP*1000, COMBINE(13,14,15,16),0))$
IINTER_QOH -
 CONSUMPTION OF HEAVY OIL BY THE INDUSTRIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $IINTER\_QOH = (IND\_QOHR+IND\_QOHL+IND\_QOHO)/STA\_POP*1000$
IINTER_QOL -
 CONSUMPTION OF LIGHT OIL BY THE INDUSTRIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $IINTER\_QOL = (IND\_QOT-(IND\_QOHR+IND\_QOHL+IND\_QOHO))/STA\_POP*1000$
RINTER_CEL -
 CUSTOMERS OF ELECTRICITY IN THE RESIDENTIAL SECTOR
 UNITS: NUMBERS OF CUSTOMERS PER CAPITA
 $RINTER\_CEL = RES\_CEL/1000/STA\_POP$
RINTER_CNG -
 CUSTOMERS OF NATURAL GAS IN THE RESIDENTIAL SECTOR
 UNITS: NUMBERS OF CUSTOMERS PER CAPITA
 $RINTER\_CNG = RES\_CNG/STA\_POP$
RINTER_GASRAT -
 PERCENTAGE OF GASOLINE ATTRIBUTED TO THE RESIDENTIAL SECTOR
 UNITS: PERCENTAGE OF TOTAL GASOLINE CONSUMPTION.
 SEE DESCRIPTION OF DERIVATION IN TEXT
RINTER_LSUM -
 ANNUAL CUSTOMER CHARGE FOR TYPICAL CUSTOMER OF ELECTRICITY
 IN THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER CAPITA
 $RINTER\_LSUM = RES\_QEL*(RES\_REL/RES\_QEL/3.412/STA\_CPI-PELM)/STA\_POP*3.412$
RINTER_PAPPL -
 PRICES OF APPLIANCES
 INDEX, 1980=1
 $RINTER\_PAPPL = STA\_PAPPL/STA\_CPI$

Table 1-2 (contd.)

RINTER_PCDI -
 PER CAPITA DISPOSABLE INCOME
 UNITS: REAL DOLLARS PER CAPITA (1980 DOLLARS)
 $RINTER\_PCDI = STA\_PCDI / STA\_CPI$

RINTER_PELA -
 AVERAGE PRICES OF ELECTRICITY IN THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $RINTER\_PELA = RES\_REL / RES\_QEL / 3.412 / STA\_CPI$

RINTER_PELM -
 MARGINAL PRICES OF ELECTRICITY FOR THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $RINTER\_PELM = RES\_BELSL * RES\_REL / RES\_QEL / 3.412 / STA\_CPI /$
 $(RES\_BELIN * 12 * RES\_CEL / 1000 / RES\_QEL + RES\_BELSL)$

RINTER_PNCAR -
 PRICES OF NEW CARS
 INDEX, 1980=1
 $RINTER\_PNCAR = STA\_PNCAR / STA\_CPI$

RINTER_PNF -
 EXPENDITURES ON NON-FUEL ITEMS BY THE RESIDENTIAL SECTOR
 INDEX, 1980=1
 $RINTER\_PNF = STA\_CPIXE / STA\_CPI$

RINTER_PNG -
 PRICE OF NATURAL GAS IN THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $RINTER\_PNG = RES\_RNG / RES\_QNG / 1000 / STA\_CPI$

RINTER_POL -
 PRICE OF LIGHT OIL IN THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $RINTER\_POL = RES\_POL / STA\_CPI$

RINTER_POM -
 PRICE OF MOTOR GASOLINE IN THE RESIDENTIAL SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)
 $RINTER\_POM = RES\_POMR / STA\_CPI$

RINTER_QEL -
 SALES OF ELECTRICITY TO THE RESIDENTIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $RINTER\_QEL = RES\_QEL / STA\_POP * 3.412$

RINTER_QNG -
 SALES OF NATURAL GAS TO THE RESIDENTIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $RINTER\_QNG = RES\_QNG / STA\_POP * 1000$

RINTER_QOL -
 CONSUMPTION OF LIGHT OIL BY THE RESIDENTIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $RINTER\_QOL = RES\_QOLT / STA\_POP * 1000$

RINTER_QOM -
 QUANTITIES OF GASOLINE ATTRIBUTED TO THE RESIDENTIAL SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $RINTER\_QOM = RINTER\_GASRAT * TRN\_QOMG * 10 / STA\_POP$

TINTER_PEL -
 PRICE OF ELECTRICITY IN THE TRANSPORTATION SECTOR
 UNITS: REAL DOLLARS PER MILLION BTU (1980 DOLLARS)

Table 1-2 (contd.)

$TINTER\_PEL = TRN\_REL / TRN\_QEL / 3.412 / STA\_CPI$
 TINTER_PLB -
 WAGES IN THE TRANSPORTATION SECTOR
 UNITS: REAL DOLLARS PER EMPLOYEE PER WEEK (1980 DOLLARS)
 $TINTER\_PLB = (TRN\_RLBT - TRN\_RLBC - TRN\_RLBPU) / ((TRN\_QLBT - TRN\_QLBC - TRN\_QLBPU) / 1000) / 52 / STA\_CPI$
 TINTER_QEL -
 SALES OF ELECTRICITY TO THE TRANSPORTATION SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $TINTER\_QEL = TRN\_QEL / STA\_POP * 3.412$
 TINTER_QLB -
 NUMBERS OF EMPLOYEE-WEEKS IN THE TRANSPORTATION SECTOR
 UNITS: NUMBERS OF EMPLOYEE-WEEKS PER CAPITA
 $TINTER\_QLB = (TRN\_QLBT - TRN\_QLBC - TRN\_QLBPU) / 1000 * 52 / STA\_POP$
 TINTER_QOA -
 CONSUMPTION OF AVIATION FUEL BY THE TRANSPORTATION SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $TINTER\_QOA = (TRN\_QOAA + TRN\_QOAJ) / STA\_POP * 1000$
 TINTER_QOH -
 CONSUMPTION OF HEAVY OIL BY THE TRANSPORTATION SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $TINTER\_QOH = (TRN\_QOHR + TRN\_QOHL) / STA\_POP * 1000$
 TINTER_QOL -
 CONSUMPTION OF LIGHT OIL BY THE TRANSPORTATION SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $TINTER\_QOL = (TRN\_QOLD + TRN\_QOLL) / STA\_POP * 1000$
 TINTER_QOM -
 QUANTITIES OF GASOLINE ATTRIBUTED TO THE TRANSPORTATION SECTOR
 UNITS: MILLIONS OF BTU PER CAPITA
 $TINTER\_QOM = TRN\_QOMG * (1 - RINTER\_GASRAT / 100) / STA\_POP * 1000$

Table 1-3
THE FORMULAE FOR TRANSFORMING THE RAW DATA

RESIDENTIAL SECTOR

<u>RINTER_</u>	
QEL	= (RES_QEL/STA_POP)*3.412
PELM	SEE DESCRIPTION OF DERIVATION IN TEXT
LSUM	SEE DESCRIPTION OF DERIVATION IN TEXT
PELA	= ((RES_REL/RES_QEL)/3.412)/STA_CPI
CEL	= (RES_CEL/1000)/STA_POP
QNG	= (RES_QNG/STA_POP)*1000
PNG	= ((RES_RNG/RES_QNG)/1000)/STA_CPI
CNG	= RES_CNG/STA_POP
QOL	= (RES_QOLT/STA_POP)*1000
POL	= RES_POL/STA_CPI
QOM	= (RINTER_GASRAT*TRN_QOMG*10)/STA_POP
POM	= RES_POMR/STA_CPI
PCDI	= ((STA_DIERL*"RATIO")/STA_POP)/STA_CPI (1964-1966)
	WHERE RATIO IS 1967 VALUE OF DILAT/DIERL
	= (STA_DILAT/STA_POP)/STA_CPI (1967-PRESENT)
PNF	= STA_CPIXE/STA_CPI
PAPPL	= STA_PAPPL/STA_CPI
PNCAR	= STA_PNCAR/STA_CPI
GASRAT	SEE DESCRIPTION OF DERIVATION IN TEXT

COMMERCIAL SECTOR

<u>CINTER_</u>	
QEL	= ((COM_QELSCI+COM_QELSHL+COM_QELOPA)/STA_POP)*3.412
PELM	SEE DESCRIPTION OF DERIVATION IN TEXT
LSUM	SEE DESCRIPTION OF DERIVATION IN TEXT
PELA	= (((COM_RELSCI+COM_RELSHL+COM_RELOPA)/(COM_QELSCI+COM_QELSHL+COM_QELOPA))/3.412)/STA_CPI
CEL	= (COM_CEL/1000)/STA_POP
QNG	= (COM_QNG/STA_POP)*1000
PNG	= ((COM_RNG/COM_QNG)/1000)/STA_CPI
CNG	= COM_CNG/STA_POP
QOL	= ((COM_QOLD+COM_QOLM+COM_QOLL)/STA_POP)*1000
POL	= COM_POLDR/STA_CPI
QOH	= ((COM_QOT-(COM_QOLD+COM_QOLM+COM_QOLL))/STA_POP)*1000
POH	= COM_POHRR/STA_CPI
QLB	= (STA_QLBT-(IND_QLB+(TRN_QLBT-TRN_QLBC-TRN_QLBPU)))/1000*52
	/STA_POP
PLB	= (STA_RLBT-(IND_RLB+(TRN_RLBT-TRN_RLBC-TRN_RLBPU)))/((STA_QLBT-(IND_QLB+(TRN_QLBT-TRN_QLBC-TRN_QLBPU)))/1000)/52/STA_CPI

INDUSTRIAL SECTOR

<u>IINTER_</u>	
QEL	= (IND_QEL/STA_POP)*3.412
PELM	SEE DESCRIPTION OF DERIVATION IN TEXT

Table 1-3 (contd.)

LSUM	SEE DESCRIPTION OF DERIVATION IN TEXT
PELA	$= ((\text{IND\_REL}/\text{IND\_QEL})/3.412)/\text{STA\_CPI}$
CEL	$= (\text{IND\_CEL}/1000)/\text{STA\_POP}$
QNG	$= (\text{IND\_QNGT}/\text{STA\_POP}) * 1000$ (1964-1975)
	$= ((\text{IND\_QNGT}-\text{UTL\_QNG})/\text{STA\_POP}) * 1000$ (1976-PRESENT)
PNG	$= ((\text{IND\_RNGT}/\text{IND\_QNGT})/1000)/\text{STA\_CPI}$ (1964-1975)
	$= (((\text{IND\_RNGT}-\text{UTL\_RNG})/(\text{IND\_QNGT}-\text{UTL\_QNG}))/1000)/\text{STA\_CPI}$ (1979-PRESENT)
CNG	$= \text{IND\_CNG}/\text{STA\_POP}$
QCL	$= (\text{IND\_QCL}/\text{STA\_POP}) * 1000$
PCL	$= (\text{UTL\_PCL}/100)/\text{STA\_CPI}$
QOL	$= ((\text{IND\_QOT}-(\text{IND\_QOHR}+\text{IND\_QOHL}+\text{IND\_QOHO}))/\text{STA\_POP}) * 1000$
POL	$= \text{IND\_POLDR}/\text{STA\_CPI}$
QOH	$= ((\text{IND\_QOHR}+\text{IND\_QOHL}+\text{IND\_QOHO})/\text{STA\_POP}) * 1000$
POH	$= \text{IND\_POHRR}/\text{STA\_CPI}$
QLB	$= \text{IND\_QLB}/1000 * 52/\text{STA\_POP}$
PLB	$= \text{IND\_RLB}/(\text{IND\_QLB}/1000)/52/\text{STA\_CPI}$

TRANSPORTATION SECTOR

TINTER_	
QEL	$= (\text{TRN\_QEL}/\text{STA\_POP}) * 3.412$
PEL	$= ((\text{TRN\_REL}/\text{TRN\_QEL})/3.412)/\text{STA\_CPI}$
QOL	$= ((\text{TRN\_QOLD}+\text{TRN\_QOLL})/\text{STA\_POP}) * 1000$
QOH	$= ((\text{TRN\_QOHR}+\text{TRN\_QOHL})/\text{STA\_POP}) * 1000$
QOM	$= ((\text{TRN\_QOMG} * (1-(\text{RINTER\_GASRAT}/100)))/\text{STA\_POP}) * 1000$
QOA	$= ((\text{TRN\_QOAA}+\text{TRN\_QOAJ})/\text{STA\_POP}) * 1000$
QLB	$= (((\text{TRN\_QLBT}-\text{TRN\_QLBC}-\text{TRN\_QLBPU})/1000) * 52)/\text{STA\_POP}$
PLB	$= (((\text{TRN\_RLBT}-\text{TRN\_RLBC}-\text{TRN\_RLBPU})/((\text{TRN\_QLBT}-\text{TRN\_QLBC}-\text{TRN\_QLBPU})/1000))/52)/\text{STA\_CPI}$

Table 1-4
THE RAW DATA USED TO COMPUTE THE DERIVED DATA

VARIABLES USED TO COMPUTE RESIDENTIAL SECTOR DERIVED DATA

RES_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE RESIDENTIAL SECTOR
REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE RESIDENTIAL SECTOR
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
QNG	SALES BY THE GAS UTILITY INDUSTRY TO THE RESIDENTIAL SECTOR
RNG	REVENUES OF THE GAS UTILITY INDUSTRY FROM THE RESIDENTIAL SECTOR
CNG	NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
QOLT	CONSUMPTION OF TOTAL NON-MOTOR PETROLEUM BY THE RESIDENTIAL SECTOR
POL	RETAIL PRICES FOR DISTILLATE FUEL IN THE RESIDENTIAL SECTOR
POMR	RETAIL PRICES AT GASOLINE SERVICE STATIONS IN THE RESIDENTIAL SECTOR
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CUSTOMERS (NOT SEASONALLY ADJUSTED)
DIERL	STATE DISPOSABLE PERSONAL INCOME (1964-1967)
DILAT	STATE DISPOSABLE PERSONAL INCOME (1967-PRESENT)
CPIXE	CONSUMER PRICE INDEX - ALL ITEMS LESS ENERGY (NOT SEASONALLY ADJUSTED)
PAPPL	WHOLESALE PRICE INDEX - HOUSEHOLD APPLIANCES
PNCAR	WHOLESALE PRICE INDEX - NEW CARS
TRN_QOMG	CONSUMPTION OF MOTOR GASOLINE BY THE TRANSPORTATION SECTOR

(NOTE: THE DERIVED VARIABLE RINTER_GASRAT IS ALSO USED.)

VARIABLES USED TO COMPUTE COMMERCIAL SECTOR DERIVED DATA

COM_QELSCI	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
QELSHL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY FOR STREET AND HIGHWAY LIGHTING
QELOPA	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO OTHER PUBLIC AUTHORITIES
RELSCI	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
RELSHL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM STREET AND HIGHWAY LIGHTING
RELOPA	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM OTHER PUBLIC AUTHORITIES
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
QNG	SALES BY THE GAS UTILITY INDUSTRY TO THE COMMERCIAL SECTOR
RNG	REVENUES OF THE GAS UTILITY INDUSTRY FROM THE COMMERCIAL SECTOR
CNG	NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE COMMERCIAL SECTOR

Table 1-4 (contd.)

QOLD	CONSUMPTION OF DISTILLATE FUEL BY THE COMMERCIAL SECTOR
QOLM	CONSUMPTION OF MOTOR GASOLINE BY THE COMMERCIAL SECTOR
QOLL	CONSUMPTION OF LPG BY THE COMMERCIAL SECTOR
POLDR	RETAIL PRICES OF DISTILLATE FUEL IN THE COMMERCIAL SECTOR
QOT	CONSUMPTION OF TOTAL PETROLEUM BY THE COMMERCIAL SECTOR
POHRR	RETAIL PRICES OF RESIDUAL FUEL IN THE COMMERCIAL SECTOR
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)
QLBT	TOTAL EMPLOYMENT
RLBT	TOTAL LABOR WAGE AND SALARY DISBURSEMENTS AND PROPRIETORS' INCOME
IND_QLB	MANUFACTURING EMPLOYMENT
RLB	MANUFACTURING WAGE AND SALARY DISBURSEMENTS
TRN_QLBT	TRANSPORTATION AND PUBLIC UTILITIES EMPLOYMENT
QLBC	COMMUNICATIONS EMPLOYMENT
QLBPU	ELECTRIC, GAS, AND SANITATION SERVICES EMPLOYMENT
RLBT	TRANSPORTATION AND PUBLIC UTILITIES WAGE AND SALARY DISBURSEMENTS
RLBC	COMMUNICATIONS WAGE AND SALARY DISBURSEMENTS
RLBPU	ELECTRIC, GAS, AND SANITATION SERVICES WAGE AND SALARY DISBURSEMENTS

VARIABLES USED TO COMPUTE INDUSTRIAL SECTOR DERIVED DATA

IND_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
QNGT	SALES BY THE GAS UTILITY INDUSTRY TO THE INDUSTRIAL SECTOR
RNGT	REVENUES OF THE GAS UTILITY INDUSTRY FROM THE INDUSTRIAL SECTOR
CNG	NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE INDUSTRIAL SECTOR
QCL	CONSUMPTION OF TOTAL COAL BY THE INDUSTRIAL SECTOR
POLDR	RETAIL PRICE OF DISTILLATE FUEL IN THE INDUSTRIAL SECTOR
QOHR	CONSUMPTION OF RESIDUAL FUEL BY THE INDUSTRIAL SECTOR
QOHL	CONSUMPTION OF LUBRICANTS BY THE INDUSTRIAL SECTOR
QOHO	CONSUMPTION OF OTHER PETROLEUM BY THE INDUSTRIAL SECTOR
POHRR	RETAIL PRICE OF RESIDUAL FUEL IN THE INDUSTRIAL SECTOR
QOT	CONSUMPTION OF TOTAL PETROLEUM BY THE INDUSTRIAL SECTOR
QLB	MANUFACTURING EMPLOYMENT
RLB	MANUFACTURING WAGE AND SALARY DISBURSEMENTS
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)
UTL_QNG	SALES BY THE GAS UTILITY INDUSTRY FOR ELECTRIC GENERATION
RNG	REVENUES OF THE GAS UTILITY INDUSTRY FROM ELECTRIC GENERATION
PCL	COAL COSTS FOR ELECTRIC GENERATION

Table 1-4 (contd.)

VARIABLES USED TO COMPUTE TRANSPORTATION SECTOR DERIVED DATA

TRN_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO RAILROADS
REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM RAILROADS
QOLL	CONSUMPTION OF LPG BY THE TRANSPORTATION SECTOR
QOLD	CONSUMPTION OF DISTILLATE FUEL BY THE TRANSPORTATION SECTOR
QOHR	CONSUMPTION OF RESIDUAL FUEL BY THE TRANSPORTATION SECTOR
QOHL	CONSUMPTION OF LUBRICANTS BY THE TRANSPORTATION SECTOR
QOMG	CONSUMPTION OF MOTOR GASOLINE BY THE TRANSPORTATION SECTOR
QOAA	CONSUMPTION OF AVIATION GASOLINE BY THE TRANSPORTATION SECTOR
QOAJ	CONSUMPTION OF JET FUEL BY THE TRANSPORTATION SECTOR
QLBT	TRANSPORTATION AND PUBLIC UTILITIES EMPLOYMENT
QLBC	COMMUNICATIONS EMPLOYMENT
QLBPU	ELECTRIC, GAS, AND SANITATION SERVICES EMPLOYMENT
RLBT	TRANSPORTATION AND PUBLIC UTILITIES WAGE AND SALARY DISBURSEMENTS
RLBC	COMMUNICATIONS WAGE AND SALARY DISBURSEMENTS
RLBPU	ELECTRIC, GAS, AND SANITATION SERVICES WAGE AND SALARY DISBURSEMENTS
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)

(NOTE: THE DERIVED VARIABLE RINTER_GASRAT IS ALSO USED.)

VARIABLES USED TO COMPUTE MARGINAL PRICES OF ELECTRICITY

RINTER_	
RES_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE RESIDENTIAL SECTOR
REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE RESIDENTIAL SECTOR
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
BEL1	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 250 KWH RESIDENTIAL SERVICE
BEL2	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 500 KWH RESIDENTIAL SERVICE
BEL3	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 750 KWH RESIDENTIAL SERVICE
BEL4	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 1,000 KWH RESIDENTIAL SERVICE
BELIN	INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE RESIDENTIAL SECTOR
BELSL	SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE RESIDENTIAL SECTOR
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)
CINTER_	
COM_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE COMMERCIAL SECTOR

Table 1-4 (contd.)

REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE COMMERCIAL SECTOR
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
CELS	SMOOTHED CUSTOMER SERIES FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE COMMERCIAL SECTOR
BEL1	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 6 KW - 750 KWH COMMERCIAL SERVICE (LARGE CITIES ONLY)
BEL2	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 12 KW - 1,500 KWH COMMERCIAL SERVICE (LARGE CITIES ONLY)
BEL3	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 30 KW - 6,000 KWH COMMERCIAL SERVICE (LARGE CITIES ONLY)
BEL4	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 40 KW - 10,000 KWH COMMERCIAL SERVICE (LARGE CITIES ONLY)
BELIN	INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE COMMERCIAL SECTOR
BELSL	SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE COMMERCIAL SECTOR
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)
IINTER_	
IND_QEL	SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
REL	REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
CEL	NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR
CELS	SMOOTHED CUSTOMER SERIES FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE INDUSTRIAL SECTOR
BEL1	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 150 KW - 30,000 KWH INDUSTRIAL SERVICE (LARGE CITIES ONLY)
BEL2	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 300 KW - 60,000 KWH INDUSTRIAL SERVICE (LARGE CITIES ONLY)
BEL3	STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 1,000 KW - 200,000 KWH INDUSTRIAL SERVICE (LARGE CITIES ONLY)
BELIN	INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE INDUSTRIAL SECTOR
BELSL	SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE INDUSTRIAL SECTOR
STA_POP	TOTAL POPULATION
CPI	CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)

VARIABLES USED TO COMPUTE PERCENT OF GASOLINE USED BY THE RESIDENTIAL SECTOR

RINTER_	
RES_QOMA	CONSUMPTION OF MOTOR GASOLINE BY HOUSEHOLD AUTOS IN THE RESIDENTIAL SECTOR
QOMB	CONSUMPTION OF MOTOR GASOLINE BY RECREATIONAL BOATS IN THE RESIDENTIAL SECTOR

Table 1-4 (contd.)

QOMT CONSUMPTION OF MOTOR GASOLINE BY HOUSEHOLD TRUCKS IN THE
RESIDENTIAL SECTOR
POMR RETAIL PRICE OF MOTOR GASOLINE IN THE RESIDENTIAL SECTOR
TRN_QOMG CONSUMPTION OF MOTOR GASOLINE BY THE TRANSPORTATION SECTOR
STA_DIERL STATE DISPOSABLE PERSONAL INCOME (1964-1967)
DILAT STATE DISPOSABLE PERSONAL INCOME (1967-PRESENT)
POP TOTAL POPULATION

VARIABLE NAME CONVENTIONS FOR RAW DATA

THREE-LETTER PREFIXES: SECTORS

RES RESIDENTIAL
COM COMMERCIAL
IND INDUSTRIAL
TRN TRANSPORTATION
UTL UTILITIES
STA STATE (ALL SECTORS)

FUEL DATATYPES

CHARACTER 1: DATATYPES (CATEGORIES)

Q QUANTITIES, SALES, CONSUMPTION; FOR LABOR, NUMBERS OF EMPLOYEES
R REVENUES; FOR LABOR, WAGES AND SALARY DISBURSEMENTS
P PRICES
C CUSTOMERS
B BILLS

CHARACTERS 2-3: FUEL TYPES

EL ELECTRICITY
NG NATURAL GAS
CL COAL
OL OIL, LIGHT
OH OIL, HEAVY
OM OIL, MOTOR GASOLINE
OA OIL, AVIATION
LB LABOR

CHARACTERS 4, 4-5 AND 4-6: FURTHER QUALIFIERS

L LPG (FOLLOWING OL)
LUBRICANTS (FOLLOWING OH)
T TOTAL (FOLLOWING OL, OH, LB)
HOUSEHOLD TRUCK (FOLLOWING OM)
A AVIATION GASOLINE (FOLLOWING OA)
HOUSEHOLD AUTO (FOLLOWING OM)
M MOTOR GASOLINE
D DISTILLATE
R RESIDUAL (FOLLOWING Q)
RETAIL (FOLLOWING P)
O OTHER PETROLEUM PRODUCTS
G GASOLINE
J JET FUEL
B RECREATIONAL BOAT

Table 1-4 (contd.)

C COMMUNICATIONS
PU ELECTRIC, GAS, AND SANITARY SERVICES
SCI SMALL COMMERCIAL AND INDUSTRIAL
SHL STREET AND HIGHWAY LIGHTING
OPA OTHER PUBLIC AUTHORITIES
1,2,... USAGE CATEGORIES (FOLLOWING BEL)
IN INTERCEPT (FOLLOWING BEL)
SL SLOPE (FOLLOWING BEL)
S SMOOTHED (FOLLOWING CEL)

OTHER DATATYPES

CHARACTER 1-2, 1-3, 1-5 AND 1-6: OTHER DATATYPES (CATEGORIES)

DI DISPOSABLE INCOME
POP POPULATION
CPI CONSUMER PRICE INDEX
PAPPL HOUSEHOLD APPLIANCE WHOLESALE PRICE INDEX
PNCAR NEW CAR CONSUMER PRICE INDEX
GASRAT GASOLINE RATIO
CHARACTER 3-5 AND 4-5: FURTHER QUALIFIERS
XE EXCLUDING ENERGY
ERL EARLY YEARS
-LAT LATE YEARS

Table 1-5
GLOSSARY OF THE RAW DATA WITH SOURCES

URGDMND_RAW_COM_BEL1 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 6 KW - 750 KWH COMMERCIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL1. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGDMND_RAW_COM_BEL2 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 12 KW - 1,500 KWH COMMERCIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL2. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGDMND_RAW_COM_BEL3 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 30 KW - 6,000 KWH COMMERCIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL3. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGDMND_RAW_COM_BEL4 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 40 KW - 10,000 KWH COMMERCIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL4. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGDMND_RAW_COM_BELIN -
INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS
FOR THE COMMERCIAL SECTOR
UNITS: DOLLARS PER MONTH
SOURCE: MACRO PELMCALC
$$BELIN = (BEL1 + BEL2 + BEL3 + BEL4 - BELSL * (0.75 + 1.5 + 6.0 + 10.0)) / 4$$

RANGE: 1964 TO PRESENT
FREQUENCY: ANNUAL

URGDMND_RAW_COM_BELSL -

Table 1-5 (contd.)

SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS
FOR THE COMMERCIAL SECTOR
UNITS: DOLLARS PER THOUSAND KWH
SOURCE: MACRO PELMCALC

$$BELSL = (4 * (BEL1 * .75 + BEL2 * 1.5 + BEL3 * 6.0 + BEL4 * 10.0) - (BEL1 + BEL2 + BEL3 + BEL4) * (.75 + 1.5 + 6.0 + 10.0)) / (4 * (.75 * .75 + 1.5 * 1.5 + 6.0 * 6.0 + 10.0 * 10.0) - (.75 + 1.5 + 6.0 + 10.0) * (.75 + 1.5 + 6.0 + 10.0))$$

RANGE: 1964 TO PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_CEL -
NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY
IN THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_CELS -
SMOOTHED CUSTOMER SERIES FOR THE TOTAL ELECTRIC UTILITY INDUSTRY
IN THE COMMERCIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS
SOURCE: EACH COLUMN IS REV(SMOOTH(REV(CORRESPONDING COL. OF CEL),.5))
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_CNG -
NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE COMMERCIAL SECTOR
UNITS: THOUSANDS OF CUSTOMERS
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_CNG. COMMERCIAL AND INDUSTRIAL CUSTOMERS
RECLASSIFIED IN SOURCE IN 1978 (CA 1977).
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_POHRR -
RETAIL PRICES OF RESIDUAL FUEL IN THE COMMERCIAL SECTOR
UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)
SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT
OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.
NOTE: MC DERIVED. SEE CM_POHRR.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_POHRW -
WHOLESALE PRICES OF RESIDUAL FUEL IN THE COMMERCIAL AND INDUSTRIAL SECTORS
UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)
SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT
OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.
NOTE: MC DERIVED. SEE CM_POHRW.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_POLDR -
RETAIL PRICES OF DISTILLATE FUEL IN THE COMMERCIAL SECTOR
UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

Table 1-5 (contd.)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.
NOTE: MC DERIVED. SEE CM_POLDR.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QELOPA -
SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO OTHER PUBLIC AUTHORITIES
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QELSCI -
SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE SMALL COMMERCIAL AND INDUSTRIAL SECTOR
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QELSHL -
SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY FOR STREET AND HIGHWAY LIGHTING
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QNG -
SALES BY THE GAS UTILITY INDUSTRY TO THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_QNG. ALL DATA PRIOR TO 1971 CONVERTED TO TRILLIONS OF BTU FROM MILLIONS OF THERMS (10 MILLION THERMS = 1 TRILLION BTU).
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QOHR -
CONSUMPTION OF RESIDUAL FUEL BY THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.
NOTE: MC DERIVED. SEE CM_QOHR. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY <.05.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QOLD -
CONSUMPTION OF DISTILLATE FUEL BY THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

Table 1-5 (contd.)

NOTE: MC DERIVED. SEE CM_QOLD.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QOLL -
CONSUMPTION OF LPG BY THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.
NOTE: MC DERIVED. SEE CM_QOLL. DUE TO ROUNDING IN SOURCE, VALUES
SHOWN HERE AS .05 ARE ACTUALLY <.05.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QOLM -
CONSUMPTION OF MOTOR GASOLINE BY THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.
NOTE: MC DERIVED. SEE CM_QOLM.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_QOT -
CONSUMPTION OF TOTAL PETROLEUM BY THE COMMERCIAL SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.
NOTE: MC DERIVED. SEE CM_QOT.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_RELOPA -
REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM OTHER PUBLIC AUTHORITIES
UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_RELSCI -
REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE SMALL COMMERCIAL AND
INDUSTRIAL SECTOR
UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_COM_RELSHL -
REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM STREET AND HIGHWAY
LIGHTING
UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT

Table 1-5 (contd.)

FREQUENCY: ANNUAL
URGEDMND_RAW_COM_RNG -
REVENUES OF THE GAS UTILITY INDUSTRY FROM THE COMMERCIAL SECTOR
UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_RNG.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_IND_BEL1 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 150KW-30,000KWH INDUSTRIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL1. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964-1968.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_IND_BEL2 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 300KW-60,000KWH INDUSTRIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL2. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964-1968.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_IND_BEL3 -
STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 1000KW-200,000KWH INDUSTRIAL SERVICE
(LARGE CITIES ONLY)
UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)
SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0040.
NOTE: MC DERIVED. SEE CM_BEL3. BILLS FOR LARGE CITIES AVERAGED TO DERIVE
STATE DATA FOR 1964-1968.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_IND_BELIN -
INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS
FOR THE INDUSTRIAL SECTOR
UNITS: DOLLARS PER MONTH
SOURCE: MACRO PELMCALC
 $BELIN = (BEL1 + BEL2 + BEL3 + BEL4 - BELSL * (30 + 60 + 200)) / 3$
RANGE: 1964 TO PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_IND_BELSL -
SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS
FOR THE INDUSTRIAL SECTOR
UNITS: DOLLARS PER THOUSAND KWH

Table 1-5 (contd.)

SOURCE: MACRO PELMCALC

$$\text{BELSL} = (3 * (\text{BEL1} * 30 + \text{BEL2} * 60 + \text{BEL3} * 200) - (\text{BEL1} + \text{BEL2} + \text{BEL3}) * (30 + 60 + 200)) / (3 * (30 * 30 + 60 * 60 + 200 * 200) - (30 + 60 + 200) * (30 + 60 + 200))$$

RANGE: 1964 TO PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_CEL -

NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR

UNITS: NUMBERS OF CUSTOMERS

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_CELS -

SMOOTHED CUSTOMER SERIES FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE INDUSTRIAL SECTOR

UNITS: NUMBERS OF CUSTOMERS

SOURCE: EACH COLUMN IS $\text{REV}(\text{SMOOTH}(\text{REV}(\text{CORRESPONDING COL. OF CEL}), .5))$

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_CNG -

NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE INDUSTRIAL SECTOR

UNITS: THOUSANDS OF CUSTOMERS

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_CNG. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY < .05. INDUSTRIAL AND COMMERCIAL CUSTOMERS RECLASSIFIED IN SOURCE IN 1978 (CA 1977).

SOME OBSERVATIONS ARE REPORTED AS ZERO EVEN THOUGH SALES ARE POSITIVE, AND A VALUE OF ZERO IS REPLACED BY .01.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_POHRR -

RETAIL PRICES OF RESIDUAL FUEL IN THE INDUSTRIAL SECTOR

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POHRR.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_POLDR -

RETAIL PRICES OF DISTILLATE FUEL IN THE INDUSTRIAL SECTOR

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POLDR.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_POLDW -

WHOLESALE PRICES OF DISTILLATE FUEL IN THE INDUSTRIAL AND COMMERCIAL SECTORS

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

Table 1-5 (contd.)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POLDW.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QCL -

CONSUMPTION OF TOTAL COAL BY THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QCL. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY < .05.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QEL -

SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

+ EDISON ELECTRIC INSTITUTE.

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RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QLB -

MANUFACTURING EMPLOYMENT

UNITS: NUMBER OF EMPLOYEES

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 21461 (EMPLOYMENT - STATE SURVEY), LINE CODE 190.

NOTE: MC DERIVED. SEE CM_QLB.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QNGT -

SALES BY THE GAS UTILITY INDUSTRY TO THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_QNGT. AFTER 1975, INCLUDES SALES FOR ELECTRIC GENERATION. ALL DATA PRIOR TO 1971 CONVERTED TO TRILLIONS OF BTU FROM MILLIONS OF THERMS (10 MILLION THERMS = 1 TRILLION BTU).

THE REPORTED VALUE FOR VT IS ZERO IN 1965, THIS IS REPLACED BY .01.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QOHL -

CONSUMPTION OF LUBRICANTS BY THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOHL. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY < .05.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

Table 1-5 (contd.)

URGEDMND_RAW_IND_QOHO -

CONSUMPTION OF OTHER PETROLEUM BY THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOHO.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QOHR -

CONSUMPTION OF RESIDUAL FUEL BY THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOHR. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY < .05.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_QOT -

CONSUMPTION OF TOTAL PETROLEUM BY THE INDUSTRIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOT.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_REL -

REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE LARGE COMMERCIAL AND INDUSTRIAL SECTOR

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_RLB -

MANUFACTURING WAGE AND SALARY DISBURSEMENTS

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 190.

NOTE: MC DERIVED. SEE CM_RLB.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_IND_RNGT -

REVENUES OF THE GAS UTILITY INDUSTRY FROM THE INDUSTRIAL SECTOR

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_RNGT. AFTER 1975, INCLUDES REVENUES FROM SALES FOR ELECTRIC GENERATION.

THE REPORTED VALUE FOR VT IS ZERO IN 1965, THIS IS REPLACED BY 10.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

Table 1-5 (contd.)

URGEDMND_RAW_NAT_CPI -

CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1967=100

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A..

VARIABLE NAME NBER12_PZU.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_CPIX -

CONSUMER PRICE INDEX - ALL ITEMS LESS ENERGY (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1967=100

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A..

VARIABLE NAME NBER12_PZU104.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_GENT -

TOTAL NATIONAL ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE. 1979.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_HAWPI -

HOUSEHOLD APPLIANCE WHOLESALE PRICE INDEX

UNITS: INDEX, 1967=100

SOURCE: SURVEY OF CURRENT BUSINESS. U.S. DEPARTMENT OF COMMERCE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_NCCPI -

NEW CAR WHOLESALE PRICE INDEX

UNITS: INDEX, 1967=100

SOURCE: SURVEY OF CURRENT BUSINESS. U.S. DEPARTMENT OF COMMERCE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_QELT -

TOTAL NATIONAL ENERGY SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO
ULTIMATE CUSTOMERS

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE. 1979.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_NAT_QELTRF -

NET TRANSFERS OF ELECTRICITY INTO THE NATION

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE. 1979.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

Table 1-5 (contd.)

URGEDMND_RAW_NAT_WPI -

WHOLESALE PRICE INDEX - ALL COMMODITIES (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1967=100

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A..

VARIABLE NAME NBER12_PW.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BEL1 -

STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 250 KWH RESIDENTIAL SERVICE

UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)

SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0040.

NOTE: MC DERIVED. SEE CM_BEL1.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BEL2 -

STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 500 KWH RESIDENTIAL SERVICE

UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)

SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0040.

NOTE: MC DERIVED. SEE CM_BEL2.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BEL3 -

STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 750 KWH RESIDENTIAL SERVICE

UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)

SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0040.

NOTE: MC DERIVED. SEE CM_BEL3.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BEL4 -

STATE AVERAGE MONTHLY ELECTRIC BILLS FOR 1000 KWH RESIDENTIAL SERVICE

UNITS: DOLLARS PER MONTH (NOMINAL DOLLARS)

SOURCE: TYPICAL ELECTRIC BILLS. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0040.

NOTE: MC DERIVED. SEE CM_BEL4.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BELIN -

INTERCEPT OF REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS FOR THE RESIDENTIAL SECTOR

UNITS: DOLLARS PER MONTH

SOURCE: MACRO PELMCALC

$BELIN = (BEL1 + BEL2 + BEL3 + BEL4 - BELSL * (0.25 + 0.5 + 0.75 + 1.0)) / 4$

RANGE: 1964 TO PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_BESL -

SLOPE OF THE REGRESSION LINE FITTED TO THE TYPICAL ELECTRIC BILLS

Table 1-5 (contd.)

FOR THE RESIDENTIAL SECTOR
UNITS: DOLLARS PER THOUSAND KWH
SOURCE: MACRO PELMCALC
$$BELSL = (4 * (BEL1 * 0.25 + BEL2 * 0.5 + BEL3 * 0.75 + BEL4 * 1.0) - (BEL1 + BEL2 + BEL3 + BEL4) * (0.25 + 0.5 + 0.75 + 1.0)) / (4 * (0.25 * 0.25 + 0.5 * 0.5 + 0.75 * 0.75 + 1.0 * 1.0) - (0.25 + 0.5 + 0.75 + 1.0) * (0.25 + 0.5 + 0.75 + 1.0))$$

RANGE: 1964 TO PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_RES_CEL -
NUMBERS OF ULTIMATE CUSTOMERS FOR THE TOTAL ELECTRIC UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_RES_CNG -
NUMBERS OF CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
UNITS: THOUSANDS OF CUSTOMERS
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_CNG.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_RES_CNGH -
NUMBERS OF GAS HOUSEHEATING CUSTOMERS FOR THE GAS UTILITY INDUSTRY IN THE RESIDENTIAL SECTOR
UNITS: NUMBERS OF CUSTOMERS
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_CNGH.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_RES_DDC -
STATE COOLING DEGREE DAYS (WEIGHTED BY POPULATION - 1980 CENSUS)
UNITS: FAHRENHEIT DEGREE DAYS (BASE = 65 F)
SOURCE: HISTORICAL CLIMATOLOGY SERIES NO. 5-2. U.S. DEPARTMENT OF COMMERCE. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ENVIRONMENTAL DATA AND INFORMATION SERVICE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_RES_DDH -
STATE HEATING DEGREE DAYS (WEIGHTED BY POPULATION - 1980 CENSUS)
UNITS: FAHRENHEIT DEGREE DAYS (BASE = 65 F)
SOURCE: HISTORICAL CLIMATOLOGY SERIES NO. 5-1. U.S. DEPARTMENT OF COMMERCE. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, ENVIRONMENTAL DATA AND INFORMATION SERVICE.
NOTE: HEATING DEGREE DAYS, RECORDED FOR THE HEATING SEASON JULY - JUNE, HAVE BEEN ENTERED FOR THE YEAR CORRESPONDING TO THE SECOND HALF OF THE SEASON, PRESUMING THAT THE LATTER PART OF THE SEASON BEARS THE WEIGHT OF HEATING DEGREE DAYS.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

Table 1-5 (contd.)

URGEDMND_RAW_RES_POL -

RETAIL PRICES FOR DISTILLATE FUEL IN THE RESIDENTIAL SECTOR

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POL.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_POMR -

RETAIL PRICES AT GASOLINE SERVICE STATIONS IN THE RESIDENTIAL SECTOR

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POMR.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_POMW -

WHOLESALE PRICES AT GASOLINE SERVICE STATIONS IN THE RESIDENTIAL SECTOR

UNITS: DOLLARS PER MILLION BTU (NOMINAL DOLLARS)

SOURCE: STATE ENERGY FUEL PRICES BY MAJOR ECONOMIC SECTOR. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0190.

NOTE: MC DERIVED. SEE CM_POMW.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_QEL -

SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO THE RESIDENTIAL SECTOR

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_QNG -

SALES BY THE GAS UTILITY INDUSTRY TO THE RESIDENTIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_QNG. ALL DATA PRIOR TO 1971 CONVERTED TO TRILLIONS OF BTU FROM MILLIONS OF THERMS (10 MILLION THERMS = 1 TRILLION BTU).

RANGE: 1964-PRESENT

+ FREQUENCY: ANNUAL

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URGEDMND_RAW_RES_QOLT -

CONSUMPTION OF TOTAL NON-MOTOR PETROLEUM BY THE RESIDENTIAL SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOLT. 1979 DATA BASED ON NEW SAMPLING FRAME IN SOURCE - NOT DIRECTLY COMPARABLE TO PREVIOUS YEARS.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

Table 1-5 (contd.)

URGEDMND_RAW_RES_QOMA -

CONSUMPTION OF MOTOR GASOLINE BY HOUSEHOLD AUTOS IN THE RESIDENTIAL SECTOR

UNITS: BILLIONS OF BTU

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.

U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.

DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMA. DATA NOT AVAILABLE BEFORE 1967. POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_QOMB -

CONSUMPTION OF MOTOR GASOLINE BY RECREATIONAL BOATS IN THE RESIDENTIAL SECTOR

UNITS: BILLIONS OF BTU

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.

U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.

DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMB. DATA NOT AVAILABLE BEFORE 1967. POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_QOMT -

CONSUMPTION OF MOTOR GASOLINE BY HOUSEHOLD TRUCKS IN THE RESIDENTIAL SECTOR

UNITS: BILLIONS OF BTU

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.

U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.

DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMT. DATA NOT AVAILABLE BEFORE 1967. POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_REL -

REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM THE RESIDENTIAL SECTOR

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_RES_RNG -

REVENUES OF THE GAS UTILITY INDUSTRY FROM THE RESIDENTIAL SECTOR

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_RNG. TYPOGRAPHICAL ERROR IN SOURCE IN 1965 IOWA DATA. 11,975 CORRECTED TO 71,975.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_CPI -

CONSUMER PRICE INDEX - ALL URBAN CONSUMERS (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1980=1

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A..

VARIABLE NAME NBER12_PZU.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

Table 1-5 (contd.)

FREQUENCY: ANNUAL

$CPI = NAT\_CPI / VALUE(NAT\_CPI, 17)$

URGEDMND_RAW_STA_CPIXE -

CONSUMER PRICE INDEX - ALL ITEMS LESS ENERGY (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1980=1

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A..

VARIABLE NAME NBER12_PZU104.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

$CPIXE = NAT\_CPIXE / VALUE(NAT\_CPIXE, 17)$

URGEDMND_RAW_STA_DIERL -

STATE DISPOSABLE PERSONAL INCOME

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: STATE DISPOSABLE PERSONAL INCOME 1958-1975 (BEA TABLE 5, UNPUBLISHED).

U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS.

NOTE: MC DERIVED. SEE CM_DIERL. TABLE 5 RECEIVED FROM BEA 11/9/81.

UNITS IN SOURCE CONVERTED FROM MILLIONS OF DOLLARS TO THOUSANDS OF DOLLARS.

RANGE: 1964-1967

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_DILAT -

STATE DISPOSABLE PERSONAL INCOME

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 37664 (STATE DISPOSABLE INCOME).

NOTE: MC DERIVED. SEE CM_DILAT.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_PAPPL -

HOUSEHOLD APPLIANCE WHOLESALE PRICE INDEX

UNITS: INDEX, 1980=1

SOURCE: SURVEY OF CURRENT BUSINESS. U.S. DEPARTMENT OF COMMERCE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

$PAPPL = NAT\_HAWPI / VALUE(NAT\_HAWPI, 17)$

$PAPPL = COLCOMB(PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL, PAPPL)$

URGEDMND_RAW_STA_PCDI -

PER CAPITA DISPOSABLE INCOME

UNITS: DOLLARS PER CAPITA (NOMINAL DOLLARS)

SOURCE: SEE DIERL, DILAT, POP.

NOTE: CALCULATED FROM DIERL (1964-1966) TIMES RATIO OF DILAT (1967) TO DIERL (1967) COMBINED WITH DILAT (1967 - PRESENT) AND DIVIDED BY POP.

RANGE: 1964 - PRESENT.

FREQUENCY: ANNUAL

$PCDI = COMBINE(SUBMAT(DIERL, 1, 0) * (SUBMAT(DILAT, 4, 0) / SUBMAT(DIERL, 4, 0)), SUBMAT(DI$

Table 1-5 (contd.)

```

ERL,2,0)*(SUBMAT(DILAT,4,0)/
SUBMAT(DIERL,4,0)),SUBMAT(DIERL,3,0)*(SUBMAT(DILAT,4,0)/SUBMAT(DIERL,4,0)),SUBMA
T(DILAT,COMBINE{4,5,6,7,8,9,10
,11,12,13,14,15,16},0))/POP

```

URGEDMND_RAW_STA_PI -

PERSONAL INCOME BY PLACE OF RESIDENCE

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 740.

NOTE: MC DERIVED. SEE CM_PL.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_PNCAR -

NEW CAR WHOLESALE PRICE INDEX

UNITS: INDEX, 1980=1

SOURCE: SURVEY OF CURRENT BUSINESS. U.S. DEPARTMENT OF COMMERCE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

PNCAR = NAT_NCCPI/VALUE(NAT_NCCPI,17)

```
PNCAR = COLCOMB(PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR,PNCAR)
```

URGEDMND_RAW_STA_POP -

TOTAL POPULATION

UNITS: THOUSANDS OF PEOPLE

SOURCE: 1964-1969 FROM BEA REGIONAL ECONOMIC INFORMATION SYSTEM.

U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS,
REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821
(PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC).

LINE CODE 760. 1970-1980 FROM SURVEY OF CURRENT BUSINESS.

U.S. DEPARTMENT OF COMMERCE. JULY 1981, PP. 33-70 (LINE 74).

1981 FIGURES FROM POP. ESTIMATES AND PROJECTIONS U.S. DEPT. OF COMMERCE
BUREAU OF THE CENSUS. APRIL 1982.

NOTE: MC DERIVED. SEE CM POP.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGDMND RAW STA QELT -

ENERGY SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO TOTAL ULTIMATE CUSTOMERS

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.

EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_QLBT -

TOTAL EMPLOYMENT

UNITS: NUMBER OF EMPLOYEES

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM, U.S. DEPARTMENT OF COMMERCE, BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC

Table 1-5 (contd.)

MEASUREMENT DIVISION. BEA TAPE REEL 21461 (EMPLOYMENT - STATE SURVEY), LINE CODE 010.

NOTE: MC DERIVED. SEE CM_QLBT.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_QNGT -

TOTAL SALES BY THE GAS UTILITY INDUSTRY

UNITS: TRILLIONS OF BTU

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_QNGT. ALL DATA PRIOR TO 1971 CONVERTED TO TRILLIONS OF BTU FROM MILLIONS OF THERMS (10 MILLION THERMS = 1 TRILLION BTU).

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_RELT -

REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM TOTAL SALES

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_RLBT -

TOTAL LABOR WAGE AND SALARY DISBURSEMENTS AND PROPRIETORS INCOME

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 010.

NOTE: MC DERIVED. SEE CM_RLBT.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_RNGT -

TOTAL REVENUES OF THE GAS UTILITY INDUSTRY

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_RNGT.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_STA_WPI -

WHOLESALE PRICE INDEX - ALL COMMODITIES (NOT SEASONALLY ADJUSTED)

UNITS: INDEX, 1980=1

SOURCE: CITIBASE: CITIBANK ECONOMIC DATABASE. CITIBANK, N.A.. VARIABLE NAME NBER12_PW.

NOTE: MONTHLY DATA ANNUALIZED.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

$WPI = NAT\_WPI / VALUE(NAT\_WPI, 17)$

$WPI = COLCOMB(WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI, WPI)$

URGEDMND_RAW_TRN_QEL -

SALES BY THE TOTAL ELECTRIC UTILITY INDUSTRY TO RAILROADS

Table 1-5 (contd.)

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QLBC -
COMMUNICATIONS EMPLOYMENT
UNITS: NUMBER OF EMPLOYEES
SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF
COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC
MEASUREMENT DIVISION. BEA TAPE REEL 21461 (EMPLOYMENT - STATE
SURVEY), LINE CODE 490.
NOTE: MC DERIVED. SEE CM_QLBC.
RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)
FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QLBPU -
ELECTRIC, GAS AND SANITARY SERVICES EMPLOYMENT
UNITS: NUMBER OF EMPLOYEES
SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF
COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC
MEASUREMENT DIVISION. BEA TAPE REEL 21461 (EMPLOYMENT - STATE
SURVEY), LINE CODE 500.
NOTE: MC DERIVED. SEE CM_QLBPU. DATA FOR DC AND DE, 1977-1979,
SUPPRESSED IN SOURCE TO PREVENT DISCLOSURE OF SENSITIVE INFORMATION.
(NOTE THAT THIS ALSO AFFECTS THE AGGREGATE MC.)
RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)
FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QLBT -
TRANSPORTATION AND PUBLIC UTILITIES EMPLOYMENT
UNITS: NUMBER OF EMPLOYEES
SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF
COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC
MEASUREMENT DIVISION. BEA TAPE REEL 21461 (EMPLOYMENT - STATE
SURVEY), LINE CODE 440.
NOTE: MC DERIVED. SEE CM_QLBT.
RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)
FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOAA -
CONSUMPTION OF AVIATION GASOLINE BY THE TRANSPORTATION SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.
NOTE: MC DERIVED. SEE CM_QOAA. DUE TO ROUNDING IN SOURCE, VALUES
SHOWN HERE AS .05 ARE ACTUALLY <.05.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOAJ -
CONSUMPTION OF JET FUEL BY THE TRANSPORTATION SECTOR
UNITS: TRILLIONS OF BTU
SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY

Table 1-5 (contd.)

INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOAJ. DUE TO ROUNDING IN SOURCE, VALUES
+ SHOWN HERE AS .05 ARE ACTUALLY <.05.

\$

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOHL -

CONSUMPTION OF LUBRICANTS BY THE TRANSPORTATION SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOHL.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOHR -

CONSUMPTION OF RESIDUAL FUEL BY THE TRANSPORTATION SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOHR. DUE TO ROUNDING IN SOURCE, VALUES
SHOWN HERE AS .05 ARE ACTUALLY <.05.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOLD -

CONSUMPTION OF DISTILLATE FUEL BY THE TRANSPORTATION SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOLD.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOLL -

CONSUMPTION OF LPG BY THE TRANSPORTATION SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOLL. DUE TO ROUNDING IN SOURCE, VALUES
SHOWN HERE AS .05 ARE ACTUALLY <.05.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOMDMC -

CONSUMPTION OF DIESEL FUEL FOR COMMERCIAL MARINE BY THE TRANSPORTATION
SECTOR

UNITS: THOUSANDS OF BARRELS

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.
U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.
DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMDMC. DATA NOT AVAILABLE BEFORE 1967.
POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

Table 1-5 (contd.)

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOMDRC -

CONSUMPTION OF DIESEL FUEL FOR COMMUTER RAIL BY THE TRANSPORTATION
SECTOR

UNITS: THOUSANDS OF BARRELS

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.
U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.
DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMDRC. DATA NOT AVAILABLE BEFORE 1967.
POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOMDRF -

CONSUMPTION OF DIESEL FUEL FOR FREIGHT RAIL BY THE TRANSPORTATION
SECTOR

UNITS: THOUSANDS OF BARRELS

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.
U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.
DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMDRF. DATA NOT AVAILABLE BEFORE 1967.
POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOMDRP -

CONSUMPTION OF DIESEL FUEL FOR INTERCITY PASSENGER RAIL BY THE TRANSPORTATION
SECTOR

UNITS: THOUSANDS OF BARRELS

SOURCE: END USE ENERGY CONSUMPTION DATA BASE: TRANSPORTATION SECTOR.
U.S. DEPARTMENT OF ENERGY, ENERGY INFORMATION ADMINISTRATION.
DOE/EIA/CR-7405-01.

NOTE: MC DERIVED. SEE CM_QOMDRP. DATA NOT AVAILABLE BEFORE 1967.
POST-1976 DATA DERIVED.

RANGE: 1967-PRESENT (WITH NA'S FROM 1964-1966)

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_QOMG -

CONSUMPTION OF MOTOR GASOLINE BY THE TRANSPORTATION SECTOR

UNITS: TRILLIONS OF BTU

SOURCE: STATE ENERGY DATA REPORT. U.S. DEPARTMENT OF ENERGY, ENERGY
INFORMATION ADMINISTRATION. DOE/EIA-0214.

NOTE: MC DERIVED. SEE CM_QOMG. CHANGE IN ROUNDING IN SOURCE IN 1979.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_REL -

REVENUES OF THE TOTAL ELECTRIC UTILITY INDUSTRY FROM RAILROADS

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_RLBC -

Table 1-5 (contd.)

COMMUNICATIONS WAGE AND SALARY DISBURSEMENTS

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 490.

NOTE: MC COMBINED. SEE CM_RLBC.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_RLBPU -

ELECTRIC, GAS AND SANITARY SERVICES WAGE AND SALARY DISBURSEMENTS

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 500.

NOTE: MC DERIVED. SEE CM_RLBPU.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_TRN_RLBT -

TRANSPORTATION AND PUBLIC UTILITIES WAGE AND SALARY DISBURSEMENTS

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: BEA REGIONAL ECONOMIC INFORMATION SYSTEM. U.S. DEPARTMENT OF COMMERCE. BUREAU OF ECONOMIC ANALYSIS, REGIONAL ECONOMIC MEASUREMENT DIVISION. BEA TAPE REEL 29821 (PERSONAL INCOME BY MAJOR SOURCE AND EARNINGS BY 2-DIGIT SIC), LINE CODE 440.

NOTE: MC DERIVED. SEE CM_RLBT.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_GENCL -

ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE FUEL COAL

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.

NOTE: MC DERIVED. SEE CM_GENCL. DATA FOR 1971 AND 1972 NOT PUBLISHED BY EDISON ELECTRIC INSTITUTE, BUT AVAILABLE FROM THE FEDERAL ENERGY ADMINISTRATION, ELECTRIC POWER ANALYSIS DIVISION - FPC MONTHLY REPORT FOR UTILITIES: POWER GENERATION. DATA FOR 1971 AND 1972 ROUNDED TO THE NEAREST WHOLE INTEGER.

RANGE: 1964-PRESENT

FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_GENCS -

ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE PRIME MOVER CONVENTIONAL STEAM

UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)

SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY. EDISON ELECTRIC INSTITUTE.

NOTE: MC DERIVED. SEE CM_GENCS.

RANGE: 1964-PRESENT

Table 1-5 (contd.)

FREQUENCY: ANNUAL
URGEDMND_RAW_UTL_GENHY -
ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE
PRIME MOVER HYDRO
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: MC DERIVED. SEE CM_GENHY.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_UTL_GENNG -
ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE
FUEL GAS
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: MC DERIVED. SEE CM_GENNG. DATA FOR 1971 AND 1972 NOT PUBLISHED BY
EDISON ELECTRIC INSTITUTE, BUT AVAILABLE FROM THE FEDERAL ENERGY
ADMINISTRATION, ELECTRIC POWER ANALYSIS DIVISION - FPC MONTHLY
REPORT FOR UTILITIES: POWER GENERATION. DATA FOR 1971 AND 1972
ROUNDED TO THE NEAREST WHOLE INTEGER.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_GENNS -
ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE
PRIME MOVER NUCLEAR STEAM
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: MC DERIVED. SEE CM_GENNS.
RANGE: 1964-PRESENT (WITH NA'S IN 1964)
FREQUENCY: ANNUAL
URGEDMND_RAW_UTL_GENOF -
ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY BY THE
FUEL OIL
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: MC DERIVED. SEE CM_GENOF. DATA FOR 1971 AND 1972 NOT PUBLISHED BY
EDISON ELECTRIC INSTITUTE, BUT AVAILABLE FROM THE FEDERAL ENERGY
ADMINISTRATION, ELECTRIC POWER ANALYSIS DIVISION - FPC MONTHLY
REPORT FOR UTILITIES: POWER GENERATION. DATA FOR 1971 AND 1972
ROUNDED TO THE NEAREST WHOLE INTEGER.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_UTL_GENT -
TOTAL ELECTRIC GENERATION BY THE TOTAL ELECTRIC UTILITY INDUSTRY
UNITS: GIGAWATT HOURS (= MILLIONS OF KILOWATT HOURS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.

Table 1-5 (contd.)

NOTE: MC DERIVED. SEE CM_GENT.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL
URGEDMND_RAW_UTL_PCL -
COAL COSTS FOR ELECTRIC GENERATION
UNITS: CENTS PER MILLION BTU (NOMINAL CENTS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: SAME DATA GIVEN IN SOURCE FOR MD, DC AND DE.
THE FOLLOWING OBSERVATIONS WERE NOT REPORTED IN THE SOURCE,
AND SUBSTITUTE VALUES WERE SUPPLIED FROM ADJOINING STATES.
ME 1964-1979, TAKEN FROM NH
MA 1978-1979, LIN. INTERPOLATED
CT 1980, TAKEN FROM CT 1979
RI 1973-1980, TAKEN FROM CT
AR 1964-1980, TAKEN FROM OK
LA 1964-1980, TAKEN FROM OK
MS 1964, TAKEN FROM AL
OK 1975-1976, LIN. INTERPOLATED
TX 1964-1970, TAKEN FROM OK
ID 1964-1980, TAKEN FROM WY
NV 1964, TAKEN FROM NV 1965
CA 1964-1980, TAKEN FROM NV
OR 1964-1980, TAKEN FROM NV
WA 1964-1980, TAKEN FROM NV
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_PNG -
GAS COSTS FOR ELECTRIC GENERATION
UNITS: CENTS PER MILLION BTU (NOMINAL CENTS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: SAME DATA GIVEN IN SOURCE FOR MD, DC AND DE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_POF -
OIL COSTS FOR ELECTRIC GENERATION
UNITS: CENTS PER MILLION BTU (NOMINAL CENTS)
SOURCE: STATISTICAL YEAR BOOK OF THE ELECTRIC UTILITY INDUSTRY.
EDISON ELECTRIC INSTITUTE.
NOTE: SAME DATA GIVEN IN SOURCE FOR MD, DC AND DE.
RANGE: 1964-PRESENT
FREQUENCY: ANNUAL

URGEDMND_RAW_UTL_QNG -
SALES BY THE GAS UTILITY INDUSTRY FOR ELECTRIC GENERATION
UNITS: TRILLIONS OF BTU
SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.
NOTE: MC DERIVED. SEE CM_QNG. AFTER 1975, SALES BY THE GAS UTILITY
INDUSTRY TO THE INDUSTRIAL SECTOR (IND_QNGT) INCLUDES SALES FROM
ELECTRIC GENERATION. THEREFORE, AFTER 1975, UTL_QNG IS USED TO

Table 1-5 (contd.)

CALCULATE SALES TO THE INDUSTRIAL SECTOR EXCLUDING ELECTRIC UTILITIES. DUE TO ROUNDING IN SOURCE, VALUES SHOWN HERE AS .05 ARE ACTUALLY <.05.

RANGE: 1976-PRESENT (WITH NA'S FROM 1964-1975)

FREQUENCY: ANNUAL

URGDMND_RAW_UTL_RNG -

REVENUES OF THE GAS UTILITY INDUSTRY FROM ELECTRIC GENERATION

UNITS: THOUSANDS OF DOLLARS (NOMINAL DOLLARS)

SOURCE: GAS FACTS. THE AMERICAN GAS ASSOCIATION.

NOTE: MC DERIVED. SEE CM_RNG. AFTER 1975, REVENUES OF THE GAS UTILITY INDUSTRY FROM THE INDUSTRIAL SECTOR (IND_RNGT) INCLUDES REVENUES FROM ELECTRIC GENERATION. THEREFORE, AFTER 1975, UTL_RNG IS USED TO CALCULATE REVENUES FROM THE INDUSTRIAL SECTOR EXCLUDING ELECTRIC UTILITIES.

RANGE: 1976-PRESENT (WITH NA'S FROM 1964-1975)

- FREQUENCY: ANNUAL

2. CAPACITY PLANNING DATA

by

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2.1 Primary Data Sources

Input data for the capacity planning module enter through three data files. The first, data group 20, contains cost and performance data for each type of power plant, obtained directly from the 1982 biannual edition of the EPRI *Technical Assessment Guide* [1]. Data for technologies not included in that document were obtained from Bechtel [2], but internal consistency and easy updating made the EPRI data preferable. This data file also contains the investment profile during the construction period, as specified by Bechtel [2]. Consistency dictated that the length of the construction period specified by EPRI receive preference for those technologies where each source specified different periods.

The second input data file, data group 21, contains unit costs for calculating the expansion of existing transmission and distribution facilities in each state. All inputs are based directly on a comparison of 1970 and 1980 data taken from *Statistics of Privately Owned Electric Utilities*, published annually by the Federal Energy Regulatory Commission (FERC) [3].

The final set of input data consists of the default values for user-specified parameters. These parameters were isolated in a separate file available to users precisely because of the uncertainties associated with them and the judgmental nature of the process of selecting default values. The rationale for selecting each default value was detailed in the analytical documentation [4].

2.2 Criteria for Updating

Plant cost and performance data could be easily updated biannually, as the source data are updated by the Electric Power Research Institute (EPRI). As indicated in the analytical documentation, maximum capacity factors for conventional coal and nuclear plants were overridden because recent empirical data

were available; the future availability of empirical data on other technologies may provide a basis for replacing EPRI's engineering design data for other technologies. In the future, certain data elements may be overridden to adapt the model to specific cases; for example the maximum capacity factor for new hydro plants may be modified from the base case (run-of-river, low-head) to reflect actual hydrologic conditions in a particular state, or the nominal size of various generating technologies may be increased for high-growth scenarios to reduce computing time expended on advancement and deferment simulations. Finally, users may wish to override cost estimates for advanced generating technologies as more reliable estimates become available from other sources.

Data for construction schedules were not obtained from a regularly updated publication. Therefore, the existence of more recent engineering estimates or empirical data is the principal criterion for updating. Minor adjustments may be needed if the length of the construction period (another data element in the first input file) is altered, because they must be consistent.

Expenditure data on transmission and distribution systems are published annually by FERC, along with updated data on peak demand and generation. However, since these costs, when compared to the cost of new generating plants, are small (becoming a smaller fraction of total capital investment as demand growth slows), and due to the approximations made in computing unit costs, frequent updating is not required.

Default values of user-specified inputs should be reviewed annually against feedback obtained from users.

2.3 Generating the Final Data Files

Generally, data are taken directly from the periodically updated source documents. The most important exceptions to this rule are detailed in the analytical documentation. Together with a few details explained below, they should provide an adequate basis for replicating the results.

The estimates of nonfuel operation and maintenance costs (typically a small fraction of total costs) are expressed by EPRI in terms of fixed and variable components. The fixed components were converted to variable costs by assuming average capacity factors of 0.60, 0.40 and 0.20 for base, cycling and peaking

units, respectively. This was done to simplify the interface with the finance and dispatch modules, and introduces relatively minor errors into the overall analysis.

The EPRI cost estimate for conventional coal-fired generating units with FGD were modified by subtracting an average FGD capital cost of about \$180/KW; this allows the pollution control module to simulate addition of FGD equipment on an uncontrolled plant, selecting the economically optimal combination of scrubbing and coal sulfur content to meet the specified emission standards.

No other alterations of the EPRI data, except decisions on the part of the modeler to increase the nominal plant size to an integer multiple of the unit sizes specified by EPRI, are required. This is not expected significantly to affect the accuracy of the estimates, but would significantly reduce the model's computational time requirements for simulations involving large states or high growth rates.

REFERENCES

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3. COAL PRICES AND CHARACTERISTICS

by

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3.1 Primary Data Sources

There are six major input files to the coal supply module. The first, PARMS, contains information on the quantity, characteristics and distribution of coal reserves. It contains information from two sources: the annually updated input files for the USEO/EIA coal supply analyses for the 1981 *Energy Information Administration (EIA) Annual Report to Congress* [1], and a 1982 report by E. H. Pechan Associates [2]. The Pechan analysis used the same U.S. Bureau of Mines Demonstrated Reserve Base data as EIA, but aggregated quantities and computed average characteristics using the 11 Advanced Utility Simulation Model (AUSM) sulfur categories instead of the EIA categories. Otherwise, the data in the AUSM data set are identical to those in the EIA data set: the mapping between coal categories is described in section 1.2.2 of the program documentation [3].

The second input data file contains transportation costs from a 1983 report by Ebeling [4]. As described in the analytical documentation for the coal supply module [3], these costs are based on analysis of 1978 data from the Interstate Commerce Commission's Uniform Rail Costing System [5], so more recent data from that source could serve as a basis for updating the Ebeling analysis.

The third input data file contains information on the properties of coal after cleaning, and the costs of the cleaning processes. It is obtained from a 1983 analysis by James F. Skea [6], which was based on washability data from the U.S. Bureau of Mines.

The fourth input data file contains estimates of 1980 minemouth prices from a 1983 analysis by Green [7], that is summarized in the analytical documentation for the coal supply module. Estimates are included for all coal types except those having 1980 production less than 200,000 tons/year or less than 150 million tons of reserves.

The fifth and sixth input data files contain default values for the user-specified parameters. One contains parameters used by subprograms DQUANT, MNCOST and RGCOST, while the other contains the user-specified parameters for LEASTC.

The final set of input data consists of the default values for user-specified parameters. These parameters were isolated in a separate file available to users precisely because of the uncertainties associated with them, and the judgmental nature of the process of selecting default values. The rationale for selecting each default value was detailed in the analytical documentation.

3.2 Criteria for Updating

The first set of input data, from the input tape to the EIA coal supply analyses for its annual report to Congress, should be updated annually to preserve the capability of replicating EIA results and to ensure use of the latest Department of Energy (DOE) data.

The second set of input data, transportation costs, ought to be updated as soon as possible to reduce uncertainties associated with assumptions made in the underlying analysis by Ebeling [4]. To provide users with maximum flexibility to alter these data, a two-step user-specified escalation factor has been provided as a scenario input variable.

The coal-cleaning data file does not depend on data that is generated or updated on a regular basis. It currently contains a fairly crude set of assumptions regarding the yield and cost of basic preparation processes, and those assumptions ought to be replaced by actual data as soon as data is available. The cost and performance parameters for the more intensive cleaning processes need not be updated until a detailed comparison with other models and actual cleaning data show that updating is necessary.

The estimates of 1980 minemouth prices probably will be adequate for the near future. At a minimum, Green's econometric analysis should be repeated when 1985 data become available. Preferably, future revisions would be based on analyses of proprietary data for individual mines such as that submitted on EIA Form 7, or on improved econometric analyses that might become available in the literature.

Default values of user-specified inputs should be reviewed annually based on feedback from users.

3.3 Generating the Final Data Files

In the coal supply module, it is the output file, not the input data, that undergoes the most modification and analysis. Input data were taken directly from the analyses by EIA, Pechan, Ebeling, Green and Skea; no additional analysis or processing beyond that detailed in the analytical and programmer documentation was performed. The coal reserves data file need not be updated unless different sulfur or heating value categories are defined.

The data from EIA are the only inputs updated on a regular basis, and even so some of the formats and category definitions may be expected to change occasionally. Therefore, the structure of the input data files may change as different or updated sources are used.

The output data file, however, is subjected to some modification before it is input to other modules of the AUSM. Specifically, the estimates of 1980 and 1985 minemouth costs and delivered prices are adjusted. The first adjustment replaces the computed 1980 delivered costs with average actual prices paid for each coal type in each state, using the FERC data contained on the unit inventory file [8]. Then a linear interpolation between 1980 and 1990 yields the adjusted result for 1985. The output file containing estimates of the least-cost local coal is also modified to reflect actual prices paid, ensuring that the cost of the local coal is not less than the delivered cost of the cheapest national coal. The files are then converted to a binary format suitable for input into the AUSM.

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3. Clark Bullard. "The Coal Supply Module." Chapter 4, *The State-Level Advanced Utility Simulation Model: Analytical Documentation*. URGE Project Office, University of Illinois at Urbana-Champaign, December 1983.
4. Ken A. Ebeling. *URGE Modeling of Coal Transportation*. Department of Industrial Engineering, North Dakota State University, Fargo, ND, September 1983.
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4. FINANCIAL DATA

by

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4.1 Primary Data Sources¹

The main source of data for the financial module is *Statistics of Privately Owned Electric Utilities in the United States, Annual, Classes A and B Companies* (DOE/EIA-0044(YR)). It provides the base year values for the financial accounts and is also the basis for computing the capitalization ratios. Most of the necessary information is under "Detail by Companies," particularly Section I - Balance Sheet, Section II - Income and Retained Earnings, and Section III - Statement of Changes in Financial Position. State-level values for the variables were derived by summing the appropriate entries over all the state's utilities reporting to this publication. The District of Columbia data has been incorporated into that for Maryland. Publication figures normally have been available by the fall of each year. However, the 1981 annual did not become available until Fall 1983.

The source for the federal income tax constants is the *Internal Revenue Code*. Specific sections are noted in Section 4.3. We obtained state-level tax rates from a survey of state regulatory commissions, but a convenient library source is *State Tax Reporter* (Chicago: Commerce Clearing House). It includes a summary table of major taxes in each state and detailed accounts of each tax. This source is continually updated.

The allowed rate of return to common equity was also obtained from our survey of regulatory commissions. A source for updating these values is the *Annual Report on Utility and Carrier Regulation* (Washington, D.C.: National Association of Regulatory Utility Commissioners). Allowed returns on equity are given in Part II, "Utility and Carrier Rate Cases." This publication also contains tables that

¹This description has been prepared by Kathleen Cole, the major author of the URGE financial module. Detailed questions should be addressed to her at the New York City Energy Office, 49 Chambers Street, New York, New York. Lucrezia Herman prepared Table 3-1, which illustrates the numerical derivation of state data entries.

could be used to update the regulatory "flag" variables for construction work in progress (cwip) in the rate base and tax accounting. The Association is a possible centralized source of information on changes that commissions might make in their method of computing allowance for funds used during construction (afudc).

The interest rate and the rate of return to preferred stock are essentially user-specified. Widely available business publications, for example, *Standard & Poor's Industry Surveys* or *Moody's Public Utility Manual*, provide industry averages for these variables. These averages could be used as guidelines for revising these rates of return.

Operating lives for plant and equipment categories were calculated by weighing a variety of sources, including our survey of state regulatory commissions and consultations with engineers. Most categories, except possibly nuclear power plants, are unlikely to need revision. Recent operating experience suggests that their useful lives may be shorter than the currently assumed 30 years. The amortization period for the investment tax credit is an estimate of the average useful life of the assets that earn the credit.

4.2 Criteria for Updating Data

Whenever a new base year is chosen for runs of the model, the data for the base year financial accounts (from *Statistics of Privately Owned Electric Utilities*) must be revised. The rates of return to debt and equity should also be revised at such times. It may be desirable to revise these rates even when the base year is unchanged, if financial conditions appear to be changing significantly.

Because changes in tax and regulatory policies are made at irregular intervals, it will be more difficult to determine when to update these data. Perhaps, the simplest routine would be to monitor the appropriate sections of the tax and regulatory sources annually. Since major changes were made to the corporate income tax quite recently, these data could be stable for several years. However, the DBLRO and ZITCR schedules will have to be revised each time the base year is changed, since they are arrays dimensioned over the simulation period. The regulatory policy data, except possibly the inclusion of cwip in the rate base, should also be relatively stable. At least an annual monitoring is called for, however.

It should be noted that tax-law changes affecting electric utilities could necessitate revisions to the computer code of the module as well as to the data, given the complexity of these provisions.

4.3 Generating the Final Data

The following sections give specific sources and instructions for computing the items in each data group. Tables 4-1 to 4-9 following the text illustrate the computation of data entries from *Statistics of Privately Owned Electric Utilities* for one state, the pages in the source from which these data are derived, descriptions of data groups 61, 62, and 65, and these data groups as they actually appear in the data file for the same state.

4.3.1 Data Group 60, Exogenous National Financial Data

DBLRO — The multiplier for the straight-line depreciation rate that may be used to compute tax depreciation on assets placed in service prior to 1981. See *IRS Code*, Sec. 167(b).

DBLRO(30) — Straight-line depreciation multipliers for each simulation year under the Accelerated Cost Recovery System (ACRS) for post-1980 assets. See *IRS Code*, Sec. 168(b).

DP101(15) and DP151(15) — Tax depreciation rate schedules under ACRS. See *IRS Code*, Sec. 168(b).

ELIG(7) — Fraction of investment cost eligible for the investment tax credit, for each asset type. See *IRS Code*, Sec. 46(c). For all types except pollution control equipment, ELIG is an estimated value that assumes a mix of assets of different useful lives.

LN(7) — Operating life for each asset type, developed from survey of state regulatory commissions and engineering sources.

LT(7) – Tax life for each asset type for assets in service prior to 1981.

These are from the Asset Depreciation Range (ADR) System, IRS Regulation 1.167 (a)-11.

LTN(7) – Tax life for each asset type under ACRS system for post-1980 assets.

See *IRS Code*, Sec. 168(b).

FTXR – Federal corporate income tax rate applicable to taxable income in excess of \$100,000. See *IRS Code*, Sec. 11.

ZITCR(30) – The investment tax credit rate in each simulation year.

See *IRS Code*, Sec. 46(a).

SSPC – Nonproperty, nonincome, nongross receipts taxes as a fraction of electric operating revenues. For all utilities reported in *Statistics of Privately Owned Electric Utilities*, nonincome taxes were 6 percent of revenues in 1980, but property and gross receipts taxes would account for the largest share. SSPC is assumed to be 0.01.

4.3.2 Data Group 61, Exogenous State Financial Data

LITC – The period over which the investment tax credit is amortized. It is an estimate of the average useful life of the asset earning the credit and is set equal to 30 currently to reflect the large share of nuclear power plant costs in total construction costs. There may be some argument for a higher value, however.

GRTXR, STXR, PTXR – The gross receipts, state corporate income, and property tax rates.

They are from our survey of regulatory commissions, but may be updated from a standard source like *State Tax Reporter*.

TBSPC – The fraction of gross construction expenditures on pre-1980 plant assumed to be direct construction costs, exclusive of afudc. This number is an estimate. A value applicable to new plants or recently constructed plants only could be much lower, due to the greatly increased financing costs and construction periods of recent years. The current value assumes a 5 percent cost of capital and five-year construction period for overall historical plant. TBSPC should be gradually lowered as later base years are used.

NORMFT – The flag variable for the tax accounting scheme (normalization or flow through) used by the state's utilities for the investment tax credit and for tax depreciation on pre-1981 assets. It is unlikely to change. All states are assumed to normalize depreciation tax savings on post-1980 assets to take advantage of the ACRS. Our values for this variable are from our survey of state regulatory commissions. *Annual Report on Utility and Carrier Regulation*, Table 47, gives selected information on current practices, but it is difficult to interpret because of its summary nature.

ICUM and IRATE – Flag variables signaling the method of computing allowance for funds used during construction (afudc), and the values again are from our survey of commissions. We do not know of a published source for updating this, but the National Association of Regulatory Utility Commissioners (NARUC) may be of assistance.

ICWIP – Flag for whether 100 percent of construction work in progress (cwip) is allowed in the rate base before the asset comes on-line. Again, the current values are from our survey, and the NARUC publication (Table 14) or staff may have up-to-date information.

REGTC and TOTTC -- Each equal the balance sheet line "accumulated deferred investment tax credits," summed over all companies in each state. The data are in *Statistics of Privately Owned Electric Utilities*. In certain states, this value requires a further adjustment to balance the exclusion of nonelectric assets from the model. This is explained below in Section 4.3.4 (data group 65).

CEQPC, PEQPC, and DTPC -- The capitalization ratios are computed from data in the company level balance sheets in the same source, summing the entries over the companies in each state:

$$\text{CEQPC} = (\text{total proprietary capital} - \text{preferred stock issued}) / (\text{total proprietary capital} + \text{total long term debt})$$

$$\text{PEQPC} = (\text{preferred stock issued}) / (\text{total proprietary capital} + \text{total long term debt})$$

$$\text{DTPC} = (\text{total long term debt}) / (\text{total proprietary capital} + \text{total long term debt})$$

4.3.3 Data Group 62, Financial Values--Working Array

CRET --The allowed rate of return on common equity, which is from our survey of state regulatory commissions. This may be updated from *Annual Report on Utility and Carrier Regulations, Part II, Utility and Carrier Rate Cases*.

RINT --The assumed interest rate over the simulation period. Its value is a matter of judgment, guided by business and government sources that provide current yields on electric utility bonds.

PRET --The assumed return to preferred equity over the simulation period, determined in a manner similar to RINT.

The following variables in data group 62 and those in data group 65 are computed from *Statistics of Privately Owned Electric Utilities*:

GRSSPE --Base year gross electric utility plant. It is computed simply by summing the balance sheet line "electric utility plant" over all companies in each state.

NETPLE --Base year net electric utility plant. It equals the balance sheet entry "electric utility plant" minus the entry "elec. util. accum. prov. for deprec., depl., and amort." summed over each state's utilities.

TOTASS --Base year total electric and current assets. It equals NETPLE plus the balance sheet entry "electric construction work in progress" plus the entry "total current and accrued assets."

TDCWIP and TDVEST --Computed within the module and equal 0.0 in the data file.

4.3.4 Data Group 65, Exogenous Base Year Financial Data

Data items that represent long-term liabilities on the balance sheet have been adjusted because the module deals only with electric assets and liabilities, whereas the data source incorporates nonelectric items into the balance sheet. The source distinguishes electric and nonelectric items on the assets side but not on the liabilities side. Therefore, for each state we have selected a group of long-term liabilities from which a share of nonelectric assets should be subtracted. For all states, it makes sense to deduct a share from each of the debt and equity accounts: old and new long-term debt, preferred stock, and common equity, including retained earnings. For some states--those that have recent large construction programs for nonelectric assets--two additional liabilities accounts should also be reduced: accumulated deferred income taxes and accumulated deferred investment tax credits. We identified the latter group of states as those in which $(\text{nonelectric deferred income tax})/(\text{total deferred income tax})$, as computed from the income statement, was equal to or greater than $(\text{nonelectric assets})/(\text{total assets})$. For 1980 there were 12 such states: Arizona, Colorado, Delaware, Iowa, Maryland, Michigan, Montana, New Jersey, New Mexico, Pennsylvania, Wisconsin, and Wyoming.

In either case, a liability account is adjusted in proportion to its share of the total liabilities being adjusted. Specifically, "other assets" equals the balance sheet entry "total assets and other debits" minus TOTASS. The reduction in a liability account then equals

$$(other\ assets)\left(\frac{liability\ account}{all\ liabilities\ being\ adjusted}\right).$$

This procedure leaves the capitalization ratios--DTPC, CEQPC, and PEQPC--unchanged. The following data items are subject to this adjustment:

NWPEQ -- Base year new preferred stock issues. It equals the entry "preferred stock" under "funds from outside sources" on the Statement of Changes in Financial Position, summed over the companies in each state.

NWDT -- Base year new long-term debt. It is computed from the "long-term debt" entry in the same source.

NWCEQ -- Base year new common stock issues. It is computed from the "common stock" entry in this source.

OLDT -- Debt issued prior to the base year. It equals the "total long-term debt" entry in the balance sheet minus NWDT, summed over all companies in the state.

OLDPEQ -- Preferred stock issued prior to the base year. It equals the "preferred stock issued" entry in the balance sheet minus NWPEQ, summed over the state.

OLDCEQ -- The value of common stock issued prior to the base year. It equals the "total proprietary capital" entry in the balance sheet minus the

"preferred stock issued" entry minus the entry "retained earnings" and minus NWCEQ summed over the state.

RETERN — Retained earnings as of January 1 of the base year. It equals the Income and Retained Earnings Statement entry "unappropriated retained earnings - beginning of year," summed over a state's companies.

ACDFTX — Base year accumulated deferred income tax. It equals the entry "accumulated deferred income taxes" under "deferred credits" on the balance sheet, summed over the companies in each state. This item is adjusted only in 12 states, as noted above.

The following base year balance sheet items are computed from the data source as follows, without adjustments:

LIACAO — The entry "total current and accrued liabilities," summed over companies in the state.

ASSCAO — Computed similarly from the entry "total current and accrued assets."

BSWCAP — ASSCAO - LIACAO.

CWPE — Construction work in progress for electric plant; it is computed by summing over companies the entry "electric construction work in progress."

CWPP — Computed from the entry "construction work in progress" in the table "Environmental Protection Facilities Balance as of December 31, 1980."
(This base year value of CWPE includes the value of CWPP.)

Two of the data group 65 variables are from the Statement of Changes in Financial Position:

ADDNET — The base year's construction expenditures, exclusive of afudc.

It is the entry "total appl. to construction and plt. expenditures
(incl. land)" summed over the companies in each state.

DRET — The entry "funds for retirement of securities and short-term debt:
long-term debt," summed as usual.

There is insufficient data to adjust these two variables for nonelectric assets, but the error in not doing so should be small and is not carried along beyond the base year.

Finally, the variable HADF is the percentage of historical plant which is estimated to use accelerated depreciation for tax purposes. Its computation is detailed in the analytical documentation [1]. The following is a suggested FORTRAN routine for calculating it:

TBSPC = 0.8

FTXR = 0.46

TLIF = 23.

OLIF = 35.

STXR = ____

ETXR = FTXR * (1 - STXR) + STXR

GRSSPE = ____

NETPLE = ____

ACDFTX = ____

ACSLDP = 0.0

ACACDP = 0.0

DB1 = 1.0

IAGEBK = ((1 - (NETPLE/GRSSPE)) * OLIF + 0.5)

DO 10 I = 1, IAGEBK

C ALLOW FOR HALF-YEAR CONVENTION IN FIRST YEAR

IF (I.EQ.1) $GRSPE = 0.5 * GRSSPE$

IF (I.GT.1) $GRSPE = GRSSPE$

C CALCULATE VALUE OF ACCUMULATED STRAIGHT LINE DEPRECIATION AS OF THE PLANT'S

BASE-YEAR AGE $ACSLDP = ACSLDP + ((GRSPE * TBSPC)/OLIF)$

C CALCULATE VALUE OF ACCUMULATED ACCELERATED DEPRECIATION AS OF THE PLANT'S

BASE-YEAR AGE IF (I.LE.12) $DA1 = (2.0/TLIF) * DB1 * (TBSPC * GRSPE)$

IF (I.GT.12) $DA1 = DB1 * (1/TLIF - 12) * (TBSPC * GRSPE)$

$ACACDP = ACACDP + DA1$

IF (I.LE.12) $DB1 = DB1 - (DA1/TBSPC * GRSPE)$

IF (I.GT.12) $DB1 = DB1$

10 CONTINUE

C CALCULATE THE ACTUAL ACCUMULATED ACCELERATED DEPRECIATION TAKEN

$ACTACC = ACSLDP + (ACDFTX/ETXR)$

C CALCULATE HADF

$HADF = (ACTACC - ACSLDP)/(ACACDP - ACSLDP)$

Table 4-1
CALCULATION OF ALABAMA DATA FROM STATISTICS
OF PRIVATELY OWNED ELECTRIC UTILITIES, 1980

Variable	Page in Financial Data Doc.	Pages in Data Source	Calculation of Value	Calculated Value*	As Reported in Printout
DG 61:					
REGTC	4	49	reported	54.90	54.90
TOTTC	4	49	reported	54.90	54.90
CEQPC	4	49	$(1626.1 - 381.9) / (1626.1 + 2254.4)$	0.3206	0.3210
PEQPC	4	49	$(381.9) / (1626.1 + 2254.4)$	0.0984	0.098
DTPC	4	49	$(2254.4) / (1626.1 + 2254.4)$	0.5810	0.5810
DG 62:					
GRSSPE	5	48	reported	4009.0	4009.00
NETPLE	5	48	$(4009.0) - (1020.2)$	2988.8	2988.80
TOTASS	5	48	$(2988.8) + (1147.8) + (402.0)$	4538.6	4538.60
"other assets"	6	48	$(4769.5) - (4538.6)$	230.9	--
"all liabilities being adjusted"	6		$(0.0) + (255.9) + (0.0) + (1998.5) + (381.9) +$ $(1124.8) + (105.2)$	3866.3	--
DG 65:					
NWPEQ adjusted	6	191	reported (0.0) $(0.0) - (230.9) * (0.0 / 3866.3)$	(0.0) 0.0	0.00
NWDT adjusted	6	191	reported (255.9) $(255.9) - (230.9) * (255.9 / 3866.3)$	(255.9) 239.7	240.60
NWCEQ adjusted	6	191	reported (0.0) $(0.0) - (230.9) * (0.0 / 3866.3)$	(0.0) 0.0	0.00
OLDT adjusted	6	49, 191	$(2254.4) - (255.9)$ $(1998.5) - (230.9) * (1998.5 / 3866.3)$	(1998.5) 1878.4	1879.10
OLDPEQ adjusted	6	49, 191	$(381.9) - (0.0)$ $(381.9) - (230.9) * (381.9 / 3866.3)$	(381.9) 358.8	359.10

(continued)

Table 4-1 (contd.)

<u>Variable</u>	<u>Page in Financial Data Doc.</u>	<u>Pages in Data Source</u>	<u>Calculation of Value</u>	<u>Calculated Value*</u>	<u>As Reported in Printout</u>
OLDCEQ adjusted	6	49, 191	(1626.1) - (381.9) - 119.4) - (0.0)	(1124.8)	
RETERN	6		(1124.8) - (230.9)*(1124.8/3866.3)	1057.8	1057.60
adjusted	6	121	reported (105.2)	(105.2)	
ACDFTX	6-7	49	(105.2) - (230.9)	98.3	98.9
LIACAO	7	49	reported	413.7	413.70
ASSCAO	7	48	reported	395.9	395.90
BSWCAP	7	48, 49	reported	402.0	402.00
GWPE	7	48	(402.0) - (395.9)	6.1	6.10
CWPP	7	576	reported	1147.8	1147.80
ADDNET	7	191	reported	97.3	97.30
DRET	7	191	reported	381.0	381.01
				2.9	2.92

*Discrepancies between calculated and printout values due to rounding error.

Source: Statistics of Privately Owned Electric Utilities in the U.S., 1980 Annual, DOE/EIA-0044(80).
Table prepared by Lucrezia Herman.

Table 4-2
BALANCE SHEET

ITEM	Alabama ALABAMA POWER COMPANY	Alabama SOUTHERN ELECTRIC GENERATING COMPANY	Alaska ALASKA ELECTRIC LIGHT AND POWER COMPANY	Arizona ARIZONA PUBLIC SERVICE COMPANY	Arizona CITIZENS UTILITIES COMPANY	Arizona TUCSON ELECTRIC POWER COMPANY
ASSETS AND OTHER DEBITS						
UTILITY PLANT						
Electric utility plant	3,846,737,046	162,254,443	22,228,360	1,877,597,351	111,528,546	1,009,948,232
Electric construction work in progress	1,147,649,358	220,285	354,699	1,081,232,048	1,523,458	170,802,420
Total Electric Utility Plant	4,994,386,404	162,474,728	22,583,059	2,958,829,399	113,052,004	1,210,750,652
Elec. util. accum. prov. for deprec., depl., and amort.	931,951,968	88,221,436	7,195,330	427,539,456	28,117,418	200,686,567
Net Electric Utility Plant Less Nuclear Fuel	4,062,434,436	74,253,292	15,387,729	2,531,289,943	84,934,586	1,010,064,085
Nuclear fuel	197,570,811			24,297,763		
Accum. prov. for amort. of nuclear fuel assemblies						
Net Nuclear Fuel	131,442,075			24,297,763		
Other utility plant	7,889,787			199,251,498	43,016,031	
Other utility construction work in progress	880			17,848,069	1,347,823	
Total Other Utility Plant	7,890,667			216,799,537	44,263,854	
Other utility accum. prov. for deprec., depl., and amort.	2,653,558			77,979,376	8,247,897	
Net Other Utility Plant	5,237,109			138,820,221	36,015,957	
All utility plant	4,052,197,544	162,258,443	22,228,360	2,101,146,612	154,544,577	1,039,948,232
All utility plant construction work in progress	1,147,650,238	220,285	354,699	1,098,780,147	2,771,281	170,802,420
Total All Utility Plant	5,199,847,882	162,478,728	22,583,059	3,199,926,759	157,315,858	1,210,750,652
All utility accum. prov. for deprec., depl., and amort.	1,000,734,262	88,221,436	7,195,330	505,518,832	36,365,315	200,686,567
Net All Utility Plant	4,199,113,620	74,257,292	15,387,729	2,694,407,927	120,950,543	1,010,064,085
Utility plant adjustments						
OTHER PROPERTY AND INVESTMENTS						
Nonutility property less accum. prov. for deprec. and amort.	2,371,623	2,837	616,391	21,445,621		
Investments in associated companies		141,078				
Investments in subsidiary companies	17,385,447		258,000	35,789,008	192,856,299	883,261
Other investments	3			2,495,394	3,563,649	103,969
Special funds	7,963	3,945		45,000		49,820
Total Other Property and Investments	19,764,976	147,860	874,391	59,775,023	196,456,148	1,036,850
CURRENT AND ACCRUED ASSETS						
Cash	12,965,742	117,256	29,378	6,621,897	145,498	3,992,240
Special deposits	1,423,678	1,593,360		15,025	33,653	76,934
Working funds	463,039		600	3,036,996	189,300	391,855
Temporary cash investments	9,017,158	4,250,000				
Notes and accounts receivable (net)	96,843,635		706,214	73,891,796	5,831,071	28,589,295
Receivables from associated companies	9,870,962	36,567,093	227,000	886,560	17,148,618	
Materials and supplies	183,826,570		568,101	74,189,456	2,082,198	56,967,494
Prepayments	44,670,846	155,470	1,287	1,318,888	95,786	1,418,921
Other current and accrued assets	490,545			613,742	97,500	
Total Current and Accrued Assets	359,272,175	43,683,179	1,562,574	166,471,380	25,623,521	91,436,739
DEFERRED DEBITS						
Unamortized debt expense	6,878,314	337,032	98,520	7,492,568	351,208	6,997,800
Extraordinary property losses	12,401,807					
Preliminary survey and investigation charges	2,865,666	668,862	58,597		3,342	663,445
Clearing accounts	1,318,958	396,488		706,701		854,611
Deferred losses from disposition of utility plant						
Research and development expenditures				34,451		165,212
Unamortized loss on reacquired debt					123,065	
Accumulated deferred income taxes	31,354,638					68,108
Other deferred debits	17,750,198	260,471	22,503	6,450,984	676,990	2,148,738
Total Deferred Debits	72,549,581	1,662,853	179,620	14,615,802	1,154,605	10,397,951
TOTAL ASSETS AND OTHER DEBITS	4,650,720,352	118,751,184	18,004,318	2,929,273,112	244,178,820	1,112,935,628

Table 4-2 (contd.)

ITEM	Alabama ALABAMA POWER COMPANY	Alabama SOUTHERN ELECTRIC GENERATING COMPANY	Alaska ALASKA ELECTRIC LIGHT AND POWER COMPANY	Arizona ARIZONA PUBLIC SERVICE COMPANY	Arizona CITIZENS UTILITIES COMPANY	Arizona TUCSON ELECTRIC POWER COMPANY
LIABILITIES AND OTHER CREDITS						
PROPRIETARY CAPITAL						
Common stock issued	224,358,200	328,000	385,125	119,534,618	7,648,899	31,176,519
Preferred stock issued	381,900,000		238,000	383,841,425		82,540,000
Capital stock subscribed, liability and premium	460,920				110,141,741	171,721,699
Other paid-in capital	886,624,083	32,472,000	13,530	671,895,585	44,898	
Installments received on capital stock						
Discount on capital stock						
Capital stock expense				32,101,306	108,000	3,469,919
Retained earnings	119,437,851		4,428,237	290,593,683	43,558,442	119,830,223
Unappropriated undistributed subsidiary earnings	535,447			1,727,971	25,271,591	7,975,439
Reacquired capital stock						
Total Proprietary Capital	1,393,316,501	32,800,000	5,281,892	1,351,191,888	186,869,971	132,121,462
LONG TERM DEBT						
Bonds less reacquired	2,067,822,158	47,493,000	4,386,000	930,836,977	46,164,000	680,939,000
Advances from associated companies						
Unamortized premium on long term debt	638,955	41,316		12,921		
Unamortized discount on long term debt - debit	15,973,996	319,458		1,895,133	33,051	
Other long term debt	154,930,455		2,837,937	125,509,155	21,500,000	84,110,786
Total Long Term Debt	2,267,217,572	47,311,854	6,123,837	1,055,263,929	67,829,919	315,379,862
CURRENT AND ACCRUED LIABILITIES						
Notes payable	96,501,000			33,000,000		27,000,000
Accounts payable	112,029,440	38,276	504,001	76,089,156	14,829,130	14,284,503
Payables to associated companies	38,922,089	8,448,199		1,885,999	22,137,094	
Taxes accrued	33,107,231	9,220,698	31,492	44,600,301	4,923,743	7,531,544
Interest accrued	54,061,141	253,092		125,007	1,211,563	12,173,814
Dividends declared	7,798,740	328,820				1,399,475
Tax collections payable	8,242,768		104,792	2,298,883	156,890	518,444
Other current and accrued liabilities	25,221,305	1,698,917	3,256,734	13,778,683	6,172,789	8,472,632
Total Current and Accrued Liabilities	373,883,714	19,968,092	3,959,222	192,685,883	49,171,829	72,931,892
DEFERRED CREDITS						
Customer advances for construction	2,000,021		50,255	9,240,762	20,719,711	1,345,159
Accumulated deferred investment tax credits	53,029,966	1,935,655	997,782		7,146,291	31,961,000
Deferred gains from disposition of utility plant						
Unamortized gain on reacquired debt	6,186,900	4,921,341				
Accumulated deferred income taxes	401,793,398	11,862,763	1,234,084	12,985,544	10,225,151	3,121,964
Other deferred credits	9,424,453	28,565	54,146	299,941,727	1,928,018	3,840,631
Total Deferred Credits	472,131,738	18,718,321	2,338,267	372,168,033	40,017,171	41,085,747
OPERATING RESERVES						
Total Operating Reserves	1,467,837			1,713,390		1,111,710
TOTAL LIABILITIES AND OTHER CREDITS	4,650,720,332	118,751,184	18,064,318	2,929,273,112	314,178,820	1,112,935,624

Note: Due to rounding detail may not add to totals

Table 4-3
INCOME AND RETAINED EARNINGS

ITEM	Alabama ALABAMA POWER COMPANY	Alabama SOUTHERN ELECTRIC GENERATING COMPANY	Alaska ALASKA ELECTRIC LIGHT AND POWER COMPANY	Arizona ARIZONA PUBLIC SERVICE COMPANY	Arizona CITIZENS UTILITIES COMPANY	Arizona TUCSON ELECTRIC POWER COMPANY
OTHER INCOME AND DEDUCTIONS						
Other Income:						
Nonutility operating income	- 984,137	6,039	- 34,732	4,505	96,085	- 11,002
Equity in earnings of subsidiary companies	2,601,741			286,642	16,053,069	
Interest and dividend income	5,660,149	1,666,890	1,597	4,173,567	1,719,795	2,029,730
Allowance for funds used during construction	32,189,265	13,360	31,182	39,076,222	485,256	8,369,757
Miscellaneous nonoperating income	816,920			18,474	3,073,673	515,060
Gain on disposition of property	1,169,047			72,360		
Total Other Income	41,502,965	1,686,329	- 2,833	43,643,770	21,439,271	11,924,548
Other Income Deductions:						
Loss on disposition of property	812					
Miscellaneous amortization	28,872			96,909		
Miscellaneous income deductions	602,955		6,425	949,542	82,125	2,529,941
Total Other Income Deductions	632,639		6,425	946,351	82,125	2,529,941
Taxes Applicable to Other Income and Deductions:						
Taxes other than income taxes	163,008			43,823		
Income taxes - Federal	- 1,454,427	639,919	- 2,051	- 614,489	294,543	264,000
Income taxes - other	- 72,180	25,871	- 497	- 74,972	46,100	50,000
Provision for deferred income taxes						89,892
Provision for deferred income taxes - credit						
Investment tax credit adjustments - net						
Investment tax credits						- 1,215,593
Total Taxes Applicable to Other Income and Deductions	- 1,363,599	666,799	- 2,548	- 645,638	340,643	- 942,701
Net Other Income and Deductions	42,233,945	1,819,439	- 5,911	43,341,857	21,666,583	10,337,305
INTEREST CHARGES						
Interest on long term debt	184,557,102	3,097,086	590,476	85,165,277	4,143,122	32,724,714
Amortization of debt discount and expense	1,121,774	49,978	10,560	712,561	43,370	535,791
Amortization of loss on reacquired debt					1,368	
Amortization of premium on debt - credit	76,432	3,714		2,944		
Amortization of gain on reacquired debt - credit	452,252	400,840				
Interest on debt to associated companies						
Other interest expense	65,086,196	117,006	248,971	125,192	22,164	
Allowance for borrowed funds used during construction - credit	79,839,232	8,922	344,509	41,796,964	216,190	6,760,405
NET INTEREST CHARGES	170,997,156	3,664,894	505,496	86,887,335	4,373,979	39,838,884
Income Before Extraordinary Items	168,716,960	4,931,122	653,870	143,290,910	25,496,537	84,791,429
EXTRAORDINARY ITEMS						
Extraordinary income						1,689,186
Extraordinary deductions						
Net Extraordinary Items						1,689,186
Income taxes - Federal and other						
Extraordinary Items After Taxes						1,689,186
NET INCOME	168,716,960	4,931,122	653,870	143,290,910	25,496,537	86,480,615
RETAINED EARNINGS						
Unappropriated Retained Earnings - Beginning of Year	103,170,923		4,012,894	259,617,448	29,205,778	103,193,565
Balance transferred from income	158,115,218	4,931,122	656,673	143,146,406	9,432,874	86,701,428
Credits to retained earnings						
Debits to retained earnings						
Appropriation of retained earnings						
Dividends declared - preferred stock	91,012,960		18,060	23,062,323	19,935,933	7,156,300
Dividends declared - common stock	115,300,000		225,270	86,107,838	- 14,855,723	32,896,490
Unappropriated undistributed subsidiary earnings	- 2,465,561	4,931,122				
Unappropriated Retained Earnings - End of Year	119,437,861		4,438,237	259,593,693	43,558,442	119,940,223
Appropriated retained earnings						
Appropriated retained earnings - amortization reserve, federal						
TOTAL RETAINED EARNINGS	119,437,861		4,438,237	259,593,693	43,558,442	119,940,223

Note: Due to rounding detail may not add to totals

Table 4-4
STATEMENT OF CHANGES IN FINANCIAL POSITION

ITEM	Alabama ALABAMA POWER COMPANY	Alabama SOUTHERN ELECTRIC GENERATING COMPANY	Alaska ALASKA ELECTRIC LIGHT AND POWER COMPANY	Arizona ARIZONA PUBLIC SERVICE COMPANY	Arizona CITIZENS UTILITIES COMPANY	Arizona TUCSON ELECTRIC POWER COMPANY
SOURCES OF FUNDS						
Funds From Operations:						
Net Income	160,716,960	4,931,122	658,070	148,290,010	25,496,537	58,270,614
Principal Noncash Charges (Credits) to Income:						
Depreciation and depletion	122,692,940	5,997,707	723,901	63,167,289	9,266,624	32,506,799
Amortization	27,928,750	46,264	8,040	1,244,555	1,026,779	- 1,334,826
Provision for deferred or future income taxes - net	67,381,541	- 466,855	502,043	5,651,000	1,361,727	18,715,927
Investment tax credit adjustments	9,012,920	265,585				
Less: Allowance for other funds used during construction	32,189,285	13,360		39,076,222	485,255	8,349,757
Other principal noncash charges (credits)	7,709,178	- 400,640	14,368	- 298,642	- 133,238	1,448,267
Total Funds From Operations	363,333,134	10,299,623	1,907,912	173,977,990	32,563,171	101,317,824
Funds From Outside Sources (New Money):						
Long term debt	255,882,603		3,000,000	223,904,750	6,070,000	63,892,968
Preferred stock				48,000,000		970,541
Common stock				152,332,138		8,000,000
Net increase in short term debt						33,838,041
Other funds from outside sources - net	45,908,312			70,851,944	3,632,521	
Total Funds From Outside Sources	301,790,915		3,000,000	495,687,932	9,702,521	105,891,650
Sale of Noncurrent Assets	130,165					
Contributions From Associated and Subsidiary Companies	174,000,000			9,097,069		3,209,300
Other Sources of Funds - Net	28,758,005	467,434	2,700,875	26,409,690	827,801	
TOTAL SOURCES OF FUNDS	867,933,209	10,767,047	7,616,887	704,572,671	43,833,296	310,417,974
APPLICATION OF FUNDS						
Construction and Plant Expenditures (Incl. Land):						
Gross additions to utility plant (less nuclear fuel)	381,879,398	2,338,926	4,406,328	473,286,532	17,075,545	149,132,805
Gross additions to nuclear fuel	28,997,397			8,270,250		
Gross additions to common utility plant				9,632,435		
Gross additions to nonutility plant	100					
Less: Allowance for other funds used during construction	32,189,285	13,360		39,076,222		8,349,757
Other construction and plant expenditures						- 1,746,299
Total Appl. to Const. and Plt. Expenditures (Incl. Land)	378,687,639	2,325,566	4,406,328	482,112,996	17,075,545	138,956,749
Dividends on Preferred Stock	31,012,950		18,080	22,082,323		7,150,300
Dividends on Common Stock	115,300,000	4,931,122	225,270	88,107,838	4,198,441	32,496,490
Funds for Retirement of Securities and Short Term Debt:						
Long term debt	1,000,000	1,923,000	2,945,726	85,638,970		
Preferred stock	2,018,508			18,720,000		
Redemption of capital stock	256,977,000			21,000,000		3,442,352
Net decrease in short term debt	2,181,870					
Other funds for retirement - net						
Total Funds for Retirement of Sec. and Short Term Debt	261,122,378	1,923,000	2,945,726	125,358,970		3,442,352
Purchases of Other Noncurrent Assets	124,140					
Investment in and Advances to Assoc. and Subs. Companies	81,682,111	1,587,319	22,505	12,930,545	19,777,186	27,964,083
Other Applications of Funds - Net					1,982,124	
TOTAL APPLICATIONS OF FUNDS	867,933,209	10,767,047	7,616,887	704,572,671	43,833,296	310,417,974

Note: Due to rounding detail may not add to totals.

Table 4-5
ENVIRONMENTAL PROTECTION FACILITIES BALANCE AS OF DECEMBER 31, 1980
(Thousands of Dollars)

Class A & B Privately Owned Electric Utilities	Air Pollution Control Facilities	Water Pollution Control Facilities	Solid Waste Disposal Costs	Noise Abatement Equipment	Aesthetic Costs	Additional Plant Capacity	Miscel- laneous Environ- mental Protection Facilities	Total	Construction Work in Progress
ALABAMA									
Alabama Power Co.	226,906	39,065	49,828	81	43,775	9,805	456	370,026	97,278
Southern Electric Generating Co.	24,465	2,985						27,450	
Total Alabama	251,461	42,020	49,828	81	43,775	9,805	456	397,426	97,278
ALASKA									
Alaska Electric Light & Power Co.									
ARIZONA									
Arizona Public Service Co.	127	38	43	1	34	2	13	258	89
Citizen Utilities Co.	3	76		25	263	32		399	1
Tucson Electric Power Co.	150,896	16,249	5,246	2,114	36,881	2,214	150	213,744	46,290
Total Arizona	151,026	16,363	5,289	2,140	37,178	2,248	163	214,401	46,380
ARKANSAS									
Arkansas Missouri Power Co.		347						347	
Arkansas Power & Light Co.	59,057	68,855	13,719	6,991	12,293	1,290	475	162,709	42,501
Total Arkansas	59,057	69,232	13,719	6,991	12,293	1,290	475	163,056	42,501
CALIFORNIA									
Pacific Gas & Electric Co.	77,000	110,000		1,500	460,000	3,000	161,000	812,500	86,000
San Diego Gas & Electric Co.	26,598	13,983		1,468	193,870		433	238,351	22,964
Southern California Edison Co.	57,067	24,074	2,757	4,365	618,293	3,746	180,277	890,679	498,050
Total California	162,665	148,057	2,757	7,333	1,272,163	6,746	341,810	1,941,530	607,014
COLORADO									
Home Light & Power Co.									
Public Service Co. of Colorado	94,535	9,666	634		73,135	9,573		187,542	66,025
Total Colorado	94,535	9,666	634		73,135	9,573		187,542	66,025
CONNECTICUT									
Connecticut Light & Power Co.	15,126	11,967	733	67	1,888		2,481	32,262	3,214
Connecticut Yankee Atomic Power Co.	42	1,205		102	6		358	1,713	
Hartford Electric Light Co., The	785	6,634	1,079	22	547		1,737	10,804	1,898
Northeast Nuclear Energy Co.	222	1,056		70	26		1,168	2,542	6,065
United Illuminating Co., The	3,123	10,607	7,711	1,578	5,726	1,416	108	30,269	
Total Connecticut	19,298	31,469	9,523	1,839	8,193	1,416	5,852	77,590	10,977
DELAWARE									
Delmarva Power & Light Co. & Subs. Cos.	93,848	14,739	1,139	1,085	8,864	407	7,825	128,221	25,099
DISTRICT OF COLUMBIA									
Potomac Electric Power Co.	130,579	36,766	6,105	31,645	292,055	85		699,254	105,649
FLORIDA									
Florida Power Corp.	139,713	14,266	4,114	3,585	388	1,278	1,599	164,936	40,869
Florida Power & Light Co.	57,060	256,417	6,774	44,845	91,363	2,426	8,972	477,797	14,822
Florida Public Utilities Co.									
Gulf Power Co.	67,701	27,538	2,061					97,300	11,363
Tampa Electric Co.	71,381	27,944	3,293			7,275		100,894	10,254
Total Florida	335,795	336,163	16,348	48,440	91,731	10,979	10,571	649,927	79,218
GEORGIA									
Georgia Power Co.	141,213	91,171	42,107		92,479	3,604	7,338	369,564	87,571
Savannah Electric & Power Co.	9,974	1,963						11,928	793
Total Georgia	151,187	93,124	42,107		92,479	3,604	7,338	380,439	88,364
HAWAII									
Hawaiian Electric Co., Inc.	14,292	14,700		900	1,869		33	31,662	
Hawaii Electric Light Co.									
Maui Electric Co., Ltd.	14,292	14,700		900	1,869		33	31,662	
Total Hawaii									
IDAHO									
Idaho Power Co.	49,155	8,392	1,066	89	466	4,386	2,278	65,652	10,254
ILLINOIS									
Central Illinois Light Co.	52,990	26,468	10,811	90	18,647			108,936	10,877
Central Illinois Public Service Co.	127,558	17,485	13,580		725		663	160,036	18,360
Commonwealth Edison Co.	185,072	394,258	9,167	4,297	38,528	457,222	4,874	1,093,218	236,961
Electric Energy, Inc.	20,832		1,247					22,099	
Illinois Power Co.	57,923	7,136	1,709	56	399	2,217	2,894	72,114	77,316
Mt. Carmel Public Utility Co.	251	1					4	256	
Sherrard Power System						177		177	
So. Beloit Water Gas & Elec. Co.						58,386		58,386	
Total Illinois	444,541	445,368	36,524	4,343	58,386	459,439	8,255	1,436,833	493,514
INDIANA									
Alcoa Generating Corp.	6,979	4,022						11,001	678
Commonwealth Edison Co., Inc.	2,690	23,596	45		134	45,030		71,496	1,912
Indiana Kentucky Electric Corp.	95,721	1,339						97,059	
Indiana & Michigan Electric Co.	157,228	53,896	1,353	18	10,027	56		222,581	362
Indianapolis Power & Light Co.	88,427	34,875	17,563	155	7,852	22,657	41	171,670	13,029
No. Indiana Public Service Co.	106,967	51,675	6,641	592	2,671	5,199		173,745	36,702
Public Service Co. of Indiana, Inc.	60,207	21,797	14,011	1,112			3,284	105,091	145,351
So. Indiana Gas & Electric Co.	26,295	3,397	7,617			22		37,431	1,747
Total Indiana	544,623	194,589	47,230	1,877	20,806	77,682	3,335	808,866	198,888
IOWA									
Interstate Power Co.	37,486	677	1,260	27	332		29	39,448	1,438
Iowa Electric Light & Power Co.	23,044	14,486		33				37,562	5,531
Iowa Illinois Gas & Electric Co.	28,449	12,027	4,615	179	3,629	7,956	618	57,473	19,286
Iowa Power & Light Co.	31,944	1,435	4,292			3,438		41,589	11,833
Iowa Public Service Co.	29,336	1,121	2,010	99	39,651	3,473		67,692	13,273
Iowa Southern Utilities Co.	8,167	97	865		24	1,171	6	18,430	12,854
Total Iowa	158,469	29,843	13,963	333	34,638	16,628	652	258,834	62,416
KANSAS									
Central Kansas Power Co., Inc.			18						18
Central Telephone & Utilities Corp.									
Kansas Gas & Electric Co.	62,283		5,037		7,161	4,280		78,761	38,871

Table 4-6
DATA GROUP 61

Description: Exogenous State Financial Data
Access Keys: ISTATE
Access Example: CALL GET (61, ISTATE, 0, 0, VLIST)

Item Identifier	Contents	Unit/Codelist	Variable Name
1	Common equity portion of capitalization	Fraction	CEQPC
2	Debt portion of capitalization	Fraction	DTPC
3	Gross receipts tax rate	Fraction	GRTXR
4	Investment tax credit amortization period	Years	LITC
5	Regulatory tax accounting flag	1, 2, or 3	NORMFT
6	Preferred stock portion of capitalization	Fraction	PEQPC
7	Accumulated investment tax credit	Million \$	REGTC
8	Property tax rate	Fraction	PTXR
9	State income tax rate	Fraction	STXR
10	Historical gross plant exclusive of AFUDC	Fraction	TBSPC
11	Base year accumulated investment tax credit	Million \$	TOTTC
12	AFUDC flag	0 or 1	ICUM
13	Before/After tax flag	0 or 1	IRATE
14	CWIP in rate base flag	0 or 1	ICWIP

Table 4-7
DATA GROUP 62

Description: Financial Values Working Array

Access Keys: ISTATE, IYEAR

Access Example: CALL GET (62, ISTATE, IYEAR, 0, VLIST)

Item Identifier	Contents	Unit/ Codelist	Variable Name
1	Rate of return to common stock	Fraction	CRET
2	Rate of return to preferred stock	Fraction	PRET
3	Interest rate on long-term debt	Fraction	RINT
4	Gross electric plant in service	Million \$	GRSSPE
5	Net gross electric plant in service	Million \$	NETPLE
6	CWIP unaccounted for	Million \$	TDCWIP
7	Vest unaccounted for	Million \$	TDVEST
8	Total assets	Million \$	TOTASS

Table 4-8
DATA GROUP 65

Description: Exogenous Base Year State Financial Data
Access Keys: ISTATE
Access Example: CALL GET (65, ISTATE, 0, 0, VLIST)

Item Identifier	Contents	Unit/ Codelist	Variable Name
1	Construction work in progress, electric	Million \$	CWPE
2	Construction work in progress, pollution control	Million \$	CWPP
3	Historical accelerated depreciation factor	Fraction	HADF
4	Accumulated deferred taxes	Million \$	ACDFTX
5	Total outstanding debt	Million \$	OLDT
6	Prior common stock issuance	Million \$	OLDCEQ
7	Prior preferred stock issuance	Million \$	OLDPEQ
8	Additions to utility plant, net of afude	Million \$	ADDNET
9	Retained earnings	Million \$	RETERN
10	Notes and other current liabilities	Million \$	LIACAO
11	Current and other assets	Million \$	ASSCAO
12	Working capital	Million \$	BSWCAP
13	New preferred stock issued	Million \$	NWPEQ
14	New common stock issued	Million \$	NWCEQ
15	New long-term debt	Million \$	NWDT
16	Long-term debt retired	Million \$	DRET

Table 4-9
ALABAMA STATE DATA FILE

1.	ALABAMA								
	0.3210	0.5810	0.0075	30.0	1.0	0.0980	54.90		DG61
	0.0180	0.0500	0.80	54.90	1.0	1.0	1.0		DG61
	0.129	0.15	0.15	4009.00	2988.80	0.00	0.00	4538.60	DG62
	1147.80	97.30	0.9710	413.70	1879.10	1057.60	359.10	381.01	DG65
	98.9	395.90	402.00	6.10	0.00	240.60	2.92		DG65

REFERENCE

1. Kathleen Cole and Duane Chapman. "The Financial Module." Chapter 3, *The State-Level Advanced Utility Simulation Model: Analytical Documentation*. URGE Project Office, University of Illinois at Urbana-Champaign, November 1983.